

100/300 AREA UNIT MANAGER MEETING  
ATTENDANCE AND DISTRIBUTION

January 14, 2010

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**EDMC**

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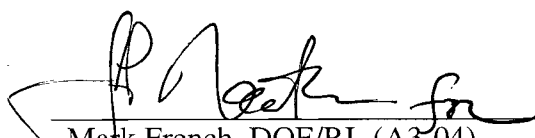
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gerhart@ecy.wa.gov Page 1 of 3

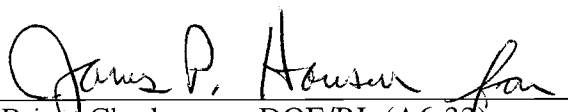
*Alisa D. Huckaby*


100/300 AREA UNIT MANAGERS MEETING  
APPROVAL OF MEETING MINUTES

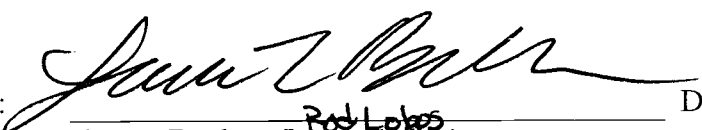
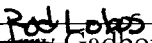
149161

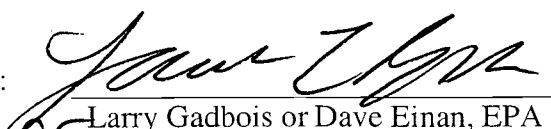
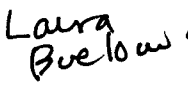
JANUARY 14, 2010

APPROVAL:  Date 2/11/10  
Mark French, DOE/RL (A3-04)  
River Corridor Project Manager

APPROVAL:  Date 2/11/2010  
Brian Charboneau, DOE/RL (A6-33)  
Groundwater Project Manager

APPROVAL:  Date 2/11/2010  
Nina Menard, Ecology (H0-57)  
Environmental Restoration Project  
Manager

APPROVAL:  Date 2/11/10  
  
Laura Buelow, Larry Gadbois, or  
Christopher Guzzetti, EPA (B1-46)  
100 Area Project Manager

APPROVAL:  Date 2/11/10  
 for Larry Gadbois or Dave Einan, EPA  
(B1-46)  
300 Area Project Manager

## 100 & 300 AREA UNIT MANAGER MEETING MINUTES

149161

### Groundwater and Source Operable Units; Facility Deactivation, Decontamination, Decommission, and Demolition (D4); Interim Safe Storage (ISS); and Mission Completion

January 14, 2010

#### ADMINISTRATIVE

- Next Unit Manager Meeting (UMM) - The next meeting will be held February 11, 2010, at the Washington Closure Hanford (WCH) Office Building, 2620 Fermi Avenue, Room C209.
- Attendees/Delegations - Attachment A is the list of attendees. Representatives from each agency were present to conduct the business of the UMM. Attachment B documents any delegations received from the agencies.
- Approval of Minutes - The November 2009 meeting minutes were approved by the U.S. Environmental Protection Agency (EPA), Washington State Department of Ecology (Ecology), and U.S. Department of Energy, Richland Operations Office (RL).
- Action Item Status - The status of action items was reviewed and updates were provided (see Attachment C).
- Agenda: Attachment D is the meeting agenda.
- Executive Session: No Executive Session was held by RL, EPA, and Ecology prior to the January 14, 2010, UMM.

#### 100-F & 100-IU-2/100-IU-6 AREAS (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides a status or information for groundwater. Attachment 2 provides a schedule and a map showing information for soil remediation at 100-IU-2 and 100-IU-6. No issues were identified, no agreements were documented, and no action items were documented.

#### 100-D & 100-H AREAS (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides a status or information for groundwater. Attachment 3 provides a map showing information for soil remediation at 100-D. The current contract for remediation work at 100-H is complete and demobilization is in progress. Attachment 4 is a Work Instruction for the Confirmatory Sampling at 100-D-63 waste site. No issues were identified.

Action: RL shall set-up a meeting with Ecology to discuss the lessons learned from the line freeze-up on the 100-HR-3 pump and treat system.

Agreement 1: Attachment 5 (TPA-CN-310) documents RL and Ecology approval to add three facilities to the *Removal Action Work Plan for 105-D and 105-H*, DOE/RL-2000-57, Rev. 2.

Agreement 2: RL and Ecology agree to realign the DR-5 pump and treat system in 100-D to add well 199-D5-42 as an injection well and add well 199-D5-104 as an extraction well.

#### 100-N AREA (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides a status or information for groundwater. Attachment 6 provides a status or information for D4/ISS at 100-N. No issues were identified and no actions were documented.

Agreement 1: Attachment 7 documents RL and Ecology approval to leave asbestos containing material in-situ along the 109-N SSE boundary wall.

### **100-K AREA (GROUNDWATER, SOILS, D4/ISS)**

Attachment 1 provides a status or information for groundwater. Attachment 8 provides a photo depicting remediation information at 118-K-1. No issues were identified, no agreements were documented, and no actions were documented.

### **100-B/C AREA (GROUNDWATER, SOILS, D4/ISS)**

Attachment 1 provides a status or information for groundwater. Attachment 9 provides a status or information for soil remediation. No issues were identified and no action items were documented.

Agreement 1: Attachment 10 documents RL and EPA approval to extend the revegetation date for 100-B-27 waste site.

Agreement 2: Attachment 11 documents RL and EPA approval to backfill the 100-B-21:4 waste site.

### **300 AREA – 618/10/11 (GROUNDWATER, SOILS, D4/ISS)**

Attachment 1 provides a status or information for groundwater. No issues were identified, no agreements were documented, and no action items were documented.

### **300 AREA - GENERAL (GROUNDWATER, SOILS, D4/ISS)**

Attachment 1 provides a status or information for groundwater. Attachment 12 provides a status or information for D4 and FR at 300 Area. No issues were identified and no action items were documented.

Agreement 1: Attachment 13 (TPA-CN-322) documents RL and EPA approval to modify the Air Monitoring Plan to resolve an inconsistency with Action Memorandum #3.

### **REGULATORY CLOSEOUT DOCUMENTS OVERALL SCHEDULE**

Attachment 14 provides a River Corridor Document Listing. No issues were identified, no agreements were documented, and no action items were documented.

### **MISSION COMPLETION PROJECT**

Attachment 15 provides a status or information regarding the orphan sites evaluation, River Corridor Baseline Risk Assessment, and the Remedial Investigation of Hanford Releases to the Columbia River. No issues were identified, no agreements were documented, and no action items were documented.

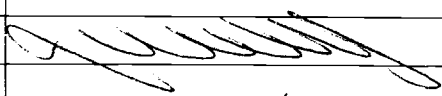
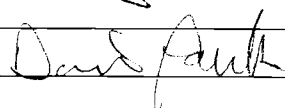
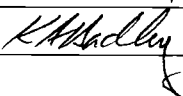
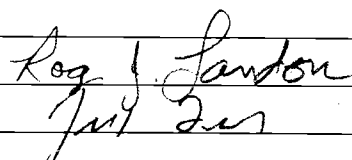
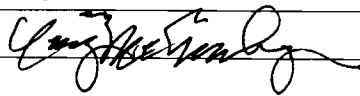
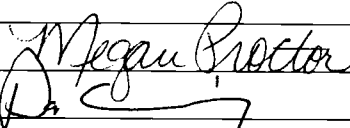
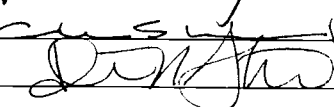
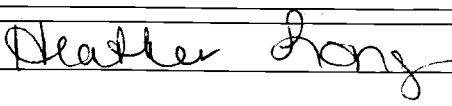
### **5-YEAR RECORD OF DECISION ACTION ITEM UPDATE**

Attachment 16 provides an update to the Five-Year Review Action Item List. No issues were identified, no agreements were documented, and no action items were documented.



# Attachment A

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# Attachment B

# Attachment C

## 100/300 Area UMM

## Action List

February 11, 2010

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
X	100-169	RL	J. Zeisloft	100-K	RL shall follow-up with EPA on the status of the lay-down yard sample design.	Open: 10/8/09; Action: Closed at 1/14/10 UMM.
O	100-170	RL	J. Hanson	100-N	RL shall follow-up with Ecology on the Data Quality Objectives (DQO)/systematic planning for the 100-N Remedial Investigation/Feasibility Study (RI/FS) Work Plan.	Open: 11/12/09; Action:
O	100-171	RL	J. Hanson	100-H	RL shall set-up a meeting with Ecology to discuss the lessons learned from the line freeze-up on the 100-HR-3 pump and treat system	Open: 1/14/10; Action:

# Attachment D

100/300 Area Unit Manager Meeting  
January 14, 2010  
Washington Closure Hanford Building  
2620 Fermi Avenue, Richland, WA 99354  
Room C209; 1:30-4:30 p.m.

1:30 - 1:45 p.m.

**Administrative:**

- Approval and signing of previous meeting minutes (November 2009)
- Update to Action Items List
- Next UMM (02/11/2009, Room C209)

1:45 - 4:00 p.m.

**Open Session: Project Area Updates - Groundwater, Field Remediation, D4/ISS:**

*Note: Each session is estimated at 5 to 15 minutes.*

- 100-F & 100-IU-2/6 Areas (Mike Thompson/Jamie Zeisloft)
- 100-D & 100-H Areas (Jim Hanson/Tom Post/Joanne Chance)
- 100-N Area (Joanne Chance, Rudy Guercia, Mike Thompson)
- 100-K Area (Jim Hanson, Jamie Zeisloft, Ellen Dagon, Steve Balone)
- 100-B/C Area (Greg Sinton, Tom Post)
- 300 Area - 618-10/11 exclusively (Chris Smith)
- 300 Area (Mike Thompson/Chris Smith/Rudy Guercia)
- Regulatory Closeout Documents Overall Schedule (John Neath, Mike Thompson)
- Mission Completion Project (John Sands)

4:00 - 4:15 p.m.

**Special Topics/Other**

- 5-Year Record of Decision Action Item Update (Jim Hanson)

4:15 - 4:30 p.m.

**Adjourn**



# Attachment E

100/300 Area Executive Session  
Tri-Parties Only  
January 14, 2010  
Washington Closure Hanford Building  
2620 Fermi Avenue, Richland, WA 99354  
Room C209; 1:00-1:30 p.m.

1:00 - 1:30 p.m.

**Executive Session (Tri-Parties Only):**

- No Executive Session

1:00 - 1:30 p.m.

**Administrative:**

- Next Executive Session (2/11/2010, Room C209)

# Attachment 1

**100/300 Areas Unit Managers Meeting  
January 14, 2010**

**100-FR-3 Operable Unit—Nathan Bowles / Mary Hartman**

(M-15-63, 9/30/2009, Submit CERCLA RI/FS Work Plans for the 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 Operable Units for groundwater and soil.)

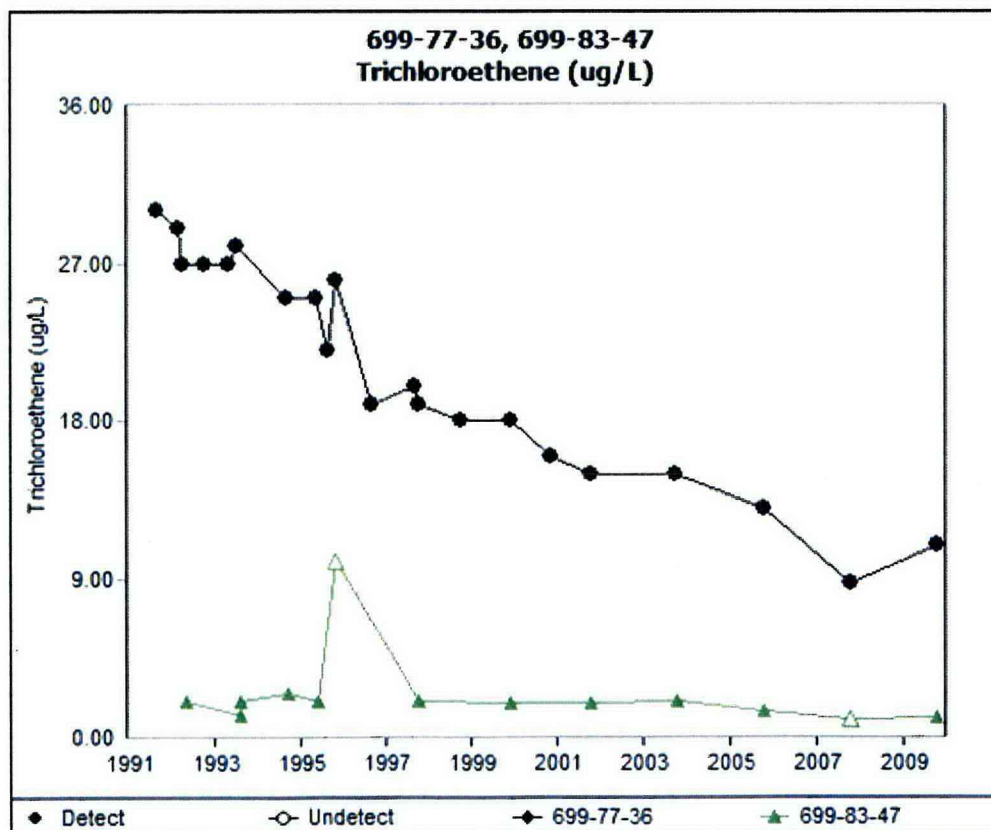
*Schedule Status- TPA milestone met by DOE/RL submittal of Draft A document to EPA on 9/28/09. EPA review comments have been received and the documents are being revised.*

Many of the data from the October well sampling were received. Most data were on trend with previous results. However, some anomalous data were originally reported for two wells. The samples were reanalyzed and the new results were back in the range of previous results. The new results were loaded into HEIS and results flagged "G" (good).

- 199-F8-3, gross alpha: original=19 pCi/L; reanalysis=12 pCi/L.
- 199-F8-4, gross beta: original=29 pCi/L; reanalysis=14 pCi/L.

Strontium-90 concentrations generally were lower in October 2009 than in previous years, for an overall declining trend.

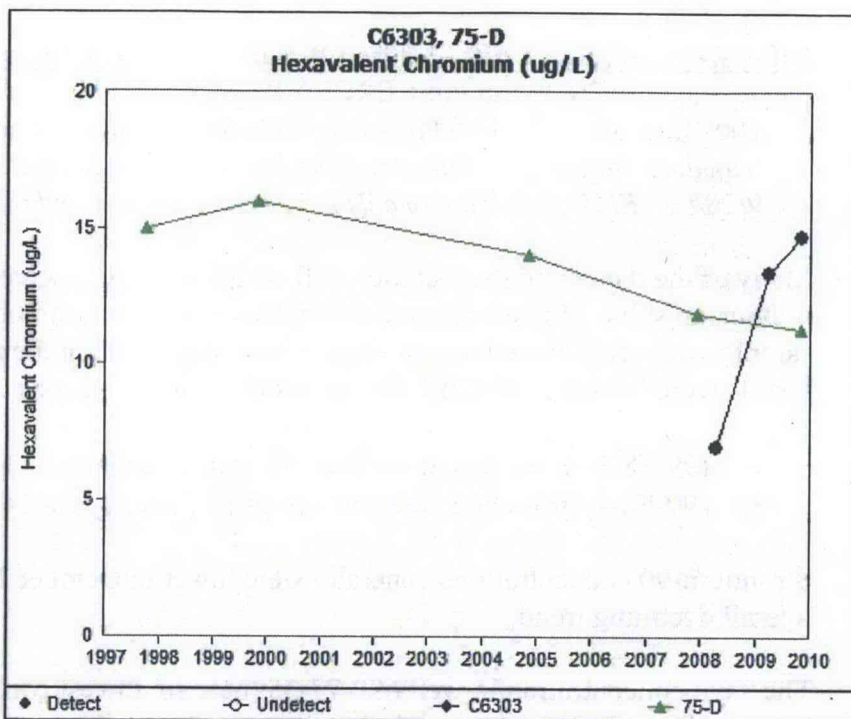
The TCE concentration in well 699-77-36 (near southwest corner of 100-F Area) was 11 µg/L, an increase from the previous result, but the overall trend is still downward. TCE was also detected in well 699-83-47, which is far NW of 100-F (1.1 µg/L, estimated). This was a typical level for that well.



**100/300 Areas Unit Managers Meeting  
January 14, 2010**

Hexavalent chromium data have been received for most of the 100-F Area aquifer tubes sampled in November. The maximum concentrations were 14.7 µg/L in tube C6303 (near the known groundwater plume) and 11.3 µg/L in tube 75-D (~2 km downstream). All other tubes had concentrations <10 µg/L.

A well-staking event was held with EPA on January 6, 2010 to support preparation for upcoming RI/FS work plan field investigation activities.



**100-HR-3 Groundwater OU – Fred Biebesheimer / John Smoot**

(M-016-112A, 12/31/2009, RL shall complete demonstrations for biostimulation and electrocoagulation according to previously approved test plans (DOE/RL-2006-70 and PNNL-16424).

*Schedule Status: On schedule to meet TPA milestone. An RL response has been prepared and submitted to the Tri-Parties.*

(M-16-155, 06/30/2010, Submit revised RD/RA Work Plans for 100 Area interim remedial actions in accordance with the ROD resulting from Milestone M-16-150)

*Schedule Status- The M-16-155 scheduled date of June 30, 2010 will not be met because an interim action ROD amendment has not been approved; however, M-16-155 includes text allowing for a day-to-day slip in the schedule based on the date of issuance for the relevant decision document. RL received EPA and Ecology comments on the related in situ remediation Focused Feasibility Study/Proposed Plan (FFS/PP) in November and December 2009. During December, the Tri-Parties documented an agreement that RL would provide a plan for updating the FFS/PP by January 18, 2010. Revision of the FFS/PP is underway. Based on December discussions with EPA, a bio-infiltration design test will be planned for implementation at the 183.1-KW head house as work continues on the FFS/PP. As previously discussed, two additional design tests of a bioreactor system, and an in-situ bioremediation system will be held in the 100-D Area to provide data supporting detailed design. These design tests will be used to support development of an RD/RA Work Plan incorporating bioremediation into the interim actions.*



**100/300 Areas Unit Managers Meeting  
January 14, 2010**

- HR-3 Treatment System
  - For the period November 1 through 30, 2009:
    - The constant rate test on wells 199-H4-12C and 199-H3-2C, started September 21, was extended beyond its planned completion date of October 28, into early November. The rebound study will continue for several months to observe the impacts of high water levels on the rewetted zone. Design modifications are underway to prepare wells 199-H4-12C and 199-H3-2C for long term operations. The test as described in the test plan was completed; a report is expected to be ready for DOE review in February and to regulators by June. This report will support the RI/FS effort.
  - For the period November 1 through 30, 2009:
    - Total average flow through the system was 81 gpm
    - Average influent hexavalent chromium concentration for H Area was 109 ug/L
    - Average influent hexavalent chromium concentration for D Area was 80 ug/L
  - For the period December 1 through 31, 2009:
    - The system was offline due to the D Transfer line freezing for approximately two weeks. The line freeze resulted from the lowered flow rate maintained to support the continued rebound study. After the lines thawed, the flow rate was increased to prevent additional line freezes. To prevent recurrence, the flow rate in the D Transfer line has been increased. The system is now pumping from all wells.
    - Total average flow through the system was 40 gpm.  
Average influent hexavalent chromium concentration for H Area was 110 ug/L  
Average influent hexavalent chromium concentration for D Area was 80 ug/L
  - Network Configuration

H4-3 (Ext.)	D8-54 (Ext.)
H4-4 (Ext.)	D8-68 (Ext.)
H4-12A (Ext.) To be replaced by -12C (RUM)	D8-72 (Ext.)
H4-15 (Ext.)	H4-7 (Inj.)
H4-63 (Ext.)	H4-14 (Inj.)
H4-64 (Ext.) To be replaced by -2C (RUM)	H4-17 (Inj.)
D8-53 (Ext.)	H4-18 (Inj.)
- DR-5 Treatment System
  - For the period November 1 to 30, 2009
    - System operated on 2 of 4 extraction wells for the entire month. Wells 199-D5-20 and -32 were disconnected in late September as part of the D Area well realignment to support hot spot pumping and injection well capacity increase.
    - Total average flow through the system was 19 gpm. The average influent hexavalent chromium concentration was 1,518 ug/L. This value has increased higher than last month's due to the rebalancing of extraction flows favoring higher concentration wells
  - 
  - For the period December 1 through 31, 2009:
    - The system has been offline since December 9<sup>th</sup> after a mechanical failure. A replacement compressor has been received and will be installed the week of 1/18/2010. Realignment to bring online extraction well 199-D5-104 and injection well 199-D5-42 is well underway, with construction complete, and insulation to be completed next.
    - Total average flow through the system was 18 gpm.

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- The average influent hexavalent chromium concentration was 1,416 ug/L. While slightly lower than the previous month, this concentration remains elevated due to the rebalancing of extraction wells to favor areas of high concentration.
- Network Configuration
  - D5-20 (Ext.)                      D5-104 (Ext.)
  - D5-39 (Ext.)                      D5-41 (Inj.)
  - D5-92 (Ext.)                      D5-42 (Inj.)
- ISRM Pond Sealing.
  - Waiting for ISRM pond liquids to finish evaporation.
- Remediation Process Optimization (RPO)
  - Modeling is complete for groundwater flows in 100-HR-3 and development of a system of 70 new extraction and injections wells to meet the river protection goal by 2012, and remediate the hexavalent chromium plume by 2020. A Technical Memorandum has been issued (SGW-40044, Revision 1). Of the 70 new wells to be installed as part of the RPO process, 12 wells have been installed in 100-H, and 9 wells have been completed in 100-D.
  - A Technical Memorandum covering RPO Phase 2, which will include both in situ (chemical and/or biological remediation by injection) and ex situ (sub-grade bioreactors) treatment is nearing completion and will begin to undergo internal contract review. Final efforts include revising the model to account for likely implementation approaches.
  - Ecology has approved Sampling & Analysis Plan, Revision 1 for the first 37 of 70 new RPO wells, and drilling has started in 100-H and 100-D Areas. Work on a TPA CN and SAP Revision 2 for the remaining 33 of 70 wells is in the document release cycle.
  - The Technical Memorandum on Ex Situ Treatment Options comparing 600 gpm systems using three types of resin and three resin regeneration options is complete. This TM recommends changing from Dowex 21K to ResinTech SIR-700 for the DX plant.
  - The fourth resin test at DR-5 was finished early to facilitate moving the test skid to the KX building. While the ResinTech SIR-700 has continued to adsorb hexavalent chromium with a tested capacity of greater than 54,000 bed volumes, a total capacity was not identified because of the need to move the test skid.
  - A Performance Monitoring Technical Memorandum is in preparation This technical memorandum will evaluate methods for assessing the effectiveness of the remedy implementation in regards to remedy objectives.
- The DX Expansion design team released a 100% design in early December. Design is based on the KX design media, amended as needed to reflect the selection of ResinTech SIR-700 and the expansion of the well field from 49 to 70 new wells.
- DX construction is under way, with the laying of 45 miles of HDPE pipe to D Area wells, the construction of 45 road crossings and the fabrication of well racks. The DX process building is complete. Transfer buildings are also near completion. The process building and two transfer stations will be completed by January 2010. The order for the IX vessels was placed.



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- Proposed treatment capacity in 100-H Area has been increased from 400 gpm to 700 gpm (current capacity is 300 gpm). This capacity will now be provided by a new HX facility, followed by a shutdown of the existing HR-3 facility. The formal HX design is beginning in early January 2010.
- Deep Chromium Investigation
  - The Aquifer Test on three existing RUM wells was started August 18 to address the CERCLA 5-year Review Action Item 12-1. The constant rate test on wells 199-H4-12C and 199-H3-2C was started September 21 and continued until early November. A data package has been prepared and is under evaluation.
- RD/RA Work Plan and IAMP. Both documents are being revised to make them stand-alone for 100-HR-3 and bring them up to date, i.e. include DX and HX expansions. Internal comment incorporation by CHPRC is under way. The document is expected to be sent for internal DOE review during mid-January.
- EM-22 Technology Projects
  - Investigation for mending ISRM Barrier: Laboratory studies into alternative ZVI amendments and dispersants was completed. Results were presented at Ecology offices on November 18, 2009, and the test report is being revised to reflect comments from DOE, and to incorporate new results from ongoing evaluations.
  - 100-D Southern Plume Investigation: A final report on the southern plume chromium source investigation in 100-D is in the document release cycle.
  - 100-D Northern Plume Investigation: This investigation has been terminated and a final report is under review and comment resolution. Completion of the investigation of the 100-D Northern plume is now supporting the RI.
- RI/FS Work Plan
  - 100-Area RI/FS Integrated Work Plan is being revised to address regulator comments. Comment incorporation is complete, and the document is in the clearance process so it can be submitted to DOE and regulators for approval.
  - The 100 DH Decision Unit Addendum 1: CHPRC is working with Ecology to verify final comment incorporation, and to ready the document for approval.

**RI/FS Activities**

The October (i.e. low river stage) groundwater sampling event occurred as defined in the approved mini-SAP. Approximately 80% of the data in support of HR-3 have been received, and the data is under review. A meeting has been scheduled for 1/25/2010 with Ecology to discuss the results to date and prepare for the February sampling event.

**100-NR-2 Groundwater OU – Nathan Bowles / Deb Alexander**

(M-15-61, 12/31/2009, Submit RI/FS Work Plan for the 100-NR-1 and 100-NR-2 Operable Units.)  
*Schedule Status- TPA milestone met by DOE/RL submittal of Draft A document to Ecology on 12/22/09. Document is currently under Ecology review.*

(M-16-14B, 12/30/2009, Submit a Draft CERCLA Proposed Plan [PP] to either amend the 1999 100-NR-01/NR-02 rod for interim action or to propose a new ROD. The PP will evaluate the permeable reactive barrier technology.)



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*Schedule Status- Draft B of document was created to include WCH proposed changes to support the 100-NR-1 OU. TPA milestone met by DOE/RL submittal of Draft B document to Ecology on 12/18/09. Document is currently under Ecology and EPA review.*

- 100-N Integrated Sampling and Analysis Plan – RL and CHPRC groundwater staff are continuing to resolve informal Ecology comments at this time.
- Apatite PRB –Drilling of the 171 multipurpose and groundwater-monitoring wells continues to support further characterization of the Sr-90 plume along the river shoreline and for future Apatite PRB expansions. As of January 8, 2009, 54 of the 171 wells had been drilled. All wells except for some of the Hanford formation wells have been developed. Any remaining Hanford formation wells will be developed when the river stage increases.

Field activities for the Jet Injection Treatability Test were initiated on December 3, 2009. All three of the test plots have been installed. The test-plot trenches were backfilled, final site clean-up activities are being conducted, and contractor demobilization has been initiated. The associated aquifer-tube sampling continues to be conducted on a weekly basis and core sampling (as part of the 171 well drilling campaign) is planned for late January to support the evaluation of the Jet Injection test. To date six sets of aquifer tubes samples have been collected; one just prior to the beginning of the tests, and five for each of the five weeks since testing began and was completed. Only preliminary data is available at this time for the first four weeks of samples, and that data is currently being evaluated.

Data for the August Quarterly Performance Monitoring samples are in. Gross beta concentrations are still continuing to decrease in most locations. The November Quarterly Monitoring took place on 11-20-09. A full suite of samples was collected in November, including Sr-90, Cations/Metals, and Anions. Awaiting the final report for November data.

- Phytoremediation – The entire 100-K Area field-test plot has been deconstructed. PNNL continues work on the final study report, which is expected to be complete this month.
- Total Petroleum Hydrocarbon Investigation – PNNL continues work on their final study report, which is expected to be complete in February. Sampling and analysis continues on select wells for TPH plume characterization. Cooperative efforts between WCH and CHPRC will occur in this year; CHPRC will be taking water samples in the two deep wells (199-N-167 and 199-N-172) before, and after bio-sparging activities. Both organizations are sharing soil and groundwater data, to increase our knowledge of the plume's extent and to aid in characterization and clean-up efforts.

**100-KR-4 Groundwater OU - Julie Robertson**

- Monthly monitoring of cultural resources for 100-KR-4 was performed on November 13, 2009 and December 18, 2009. No problems were observed.
- RI/FS Work Plan, Addendum 2 (K Decision Unit)



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- The Sampling and Analysis Plan was signed and released for implementation in October. The remainder of Addendum 2 has been cleared for release. Final approval is pending release of the over-arching integrated work plan.
  - Results from the October (low water) sampling of all 18 K Decision Unit risk assessment wells are coming in for verification, but as of January 4, 2010, data had not been entered into HEIS.
  - Excavation permit paperwork was initiated for the proposed remedial investigation wells, with the exceptions of wells #9 and #R4.
  - Preparation of the RI/FS Report that will lead to a final record of decision was initiated in December 2009.
- Remedial Process Optimization: The K Area Remedial Process Optimization technical memorandum was provided for RL review on November 17, 2009. RL provided preliminary feedback to guide revisions. The document calls for taking a three-phased approach to meeting the 2012 and 2020 goals.
    - RPO/Realignment Phase 3 actions: Phase 3 will connect three new wells to K Area pump-and-treat systems to improve system capture to meet the 2012 river protection goal. Implementation of Phase 3 is in planning. Conceptual design is complete. Considerable effort has been expended to gain Tribal Nation acceptance of proposed well locations. Discussion with the Tribal Nations continues.
    - RPO/Realignment Phases 4 and 5: Phases 4 and 5 call for implementation of bioremediation actions in KW, KE, and the area around the 116-K-2 Trench, as well as additional well drilling and realignment of the pump-and-treat systems. Discussions are underway between RL and EPA regarding path forward for implementation of bio remedies in K Area.
  - Interim Action Monitoring Plan: The decisional draft of the plan, which summarizes existing KR4 Operable Unit interim action monitoring requirements into one updated document, was provided for RL review on November 24, 2009.
  - 100-KR-4 System for the period of November 1 through November 30, 2009.
    - The system operated at reduced flow rates to support Phase 2 realignment construction. Transfer Building 1 was in outage throughout the month. Additionally, extraction well 199-K-116A experienced intermittent outages during the month.
    - Total average flow through the system was approximately 79 gpm.
    - Average influent hexavalent chromium concentration was 35 µg/L.
  - 100-KR-4 System for the period of December 1 through December 31, 2009.
    - The system operated at reduced flow rates. Transfer Building 1 (extraction wells 199-K-120A and -127) was in outage to support Phase 2 realignment construction. Additionally, extraction well 199-K-116A was out of service most of the month due to a failed transducer and freezing weather.
    - Total average flow through the system was approximately 54 gpm.
    - Average influent hexavalent chromium concentration was 31 µg/L.
  - KX System for the period of November 1, 2009 through November 30, 2009:
    - The facility operated at reduced flow rates. Transfer Building 1 was out of service early in the month until electrical repairs were completed. Extraction well 199-K-141, which had been out of service since mid-July, was brought back online after trouble-shooting,



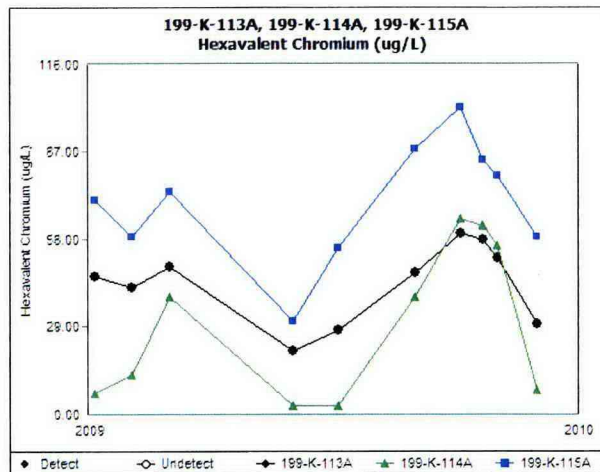
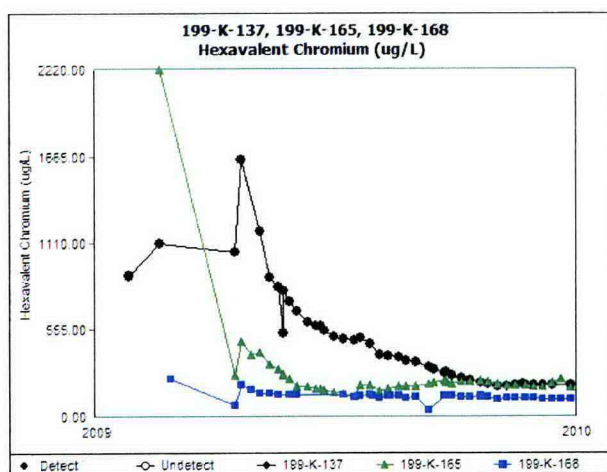
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resolution of electrical work control concerns, and repair work was completed in mid-November..

- Total average flow through the system was approximately 378 gpm.
- Average influent hexavalent chromium concentration was 62 µg/L.
- KX System for the period of December 1, 2009 through December 31, 2009:
  - The facility operated at reduced flow rates; Transfer Building 1 was at reduced flow to support Phase 2 realignment construction. A rebound study plan is under consideration for extraction well 199-K-150, which was being considered for conversion to an injection well prior to the December receipt of sampling information from new Phase 2 well 199-K-182. An aquifer test plan is being developed for extraction well 199-K-178 to gain information to improve modeling of the area down gradient of the 105-KE Reactor.
  - Total average flow through the system was approximately 429 gpm.
  - Average influent hexavalent chromium concentration was 58 µg/L.
- Phase 2 KX/KR4 Well Realignment
  - Construction work continued on both the KX and KR4 systems. Initiation of KR4 system acceptance testing is expected in early January. A complete outage of the KX system will also be required to allow for replacement/enlargement of the booster pump header in the main process building and final Phase 2 well connections; however, timing of the outage may slip until the weather warms to minimize freeze potential. The header replacement will eliminate a flow constriction point in the KX system. The outage is anticipated to last between 4 days and 2 weeks.
  - Approval to proceed with drilling of the final two Phase 2 wells was received on November 19, 2009. Development of a new monitoring well 199-K-182 was completed December 28, 2009. Preliminary sample results indicate the presence of hexavalent chromium at this location at approximately 75 µg/L. This result revises the K Area conceptual model. Drilling of proposed injection well 199-K-180 is expected to begin the week of January 4, 2010.
- KW System for the period of November 1, 2009 through November 30, 2009:
  - The KW system operated normally. Extraction well 199-K-140 was operated intermittently due to low hexavalent chromium levels. Disconnection of this well and reconnection of K-139 is planned to occur in the near future.
  - Former extraction well 199-K-35, which lies approximately 10 feet from the 183.1-KW Head House, was disconnected from the KW system on December 2, 2009. A sample pump will be inserted into the well to permit groundwater sampling during D&D activities and to monitor plume concentrations upgradient of previously existing monitoring wells.
  - Total average flow through the system was approximately 196 gpm.
  - Average influent hexavalent chromium concentration was 120 µg/L.
- KW System for the period of December 1, 2009 through December 31, 2009:
  - The KW system operated normally. Extraction well 199-K-140 was operated intermittently due to low hexavalent chromium levels and was out of service intermittently during the month due to freezing weather. Disconnection of this well and reconnection of K-139 is being planned.
  - A sample pump was installed in former extraction well 199-K-35. Initial sampling occurred December 22, 2009; sample results indicate the presence of elevated hexavalent chromium at this location.

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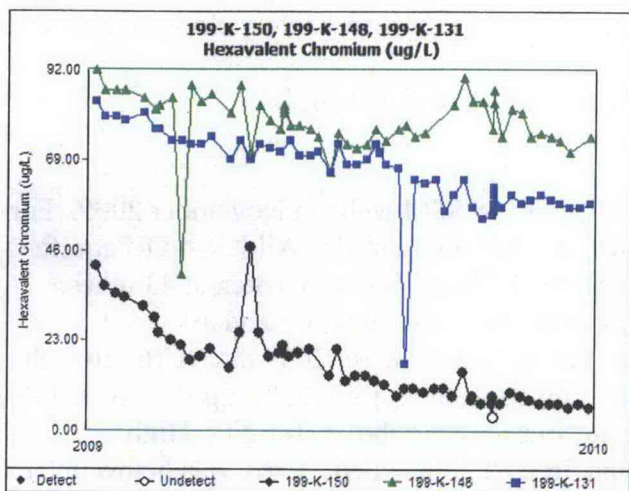
- Total average flow through the system is calculated to have been approximately 185 gpm. However, the data are being re-evaluated, and actual flows were likely closer to the normal ~200 gpm.
- Average influent hexavalent chromium concentration was 121 µg/L.
- Monitoring Activities:
  - Routine Monitoring: 39 samples were collected at 8 KR4 wells in November 2009. For December 2009, 45 samples were collected at 9 KR-4 OU wells. All KR-4 OU aquifer tubes were accessed for sampling in November; 147 samples were taken at 43 tubes.
  - KW extraction wells: All extraction wells were above the aquatic standard.
  - KR4 Extraction Wells: Based on October and early November 2009 data, Cr6+ in wells 199-K-113A, K-114A, K-115A and K-129 ranged from 52 µg/L to 102 µg/L. Well 199-K-116A, at 25.5 µg/L, continues a slow decline but remains above 20 µg/L. High concentrations are 102 µg/L at K-115A and 56 µg/L at K-114A. Cr6+ was below detection level at former extraction well 199-K-117A.



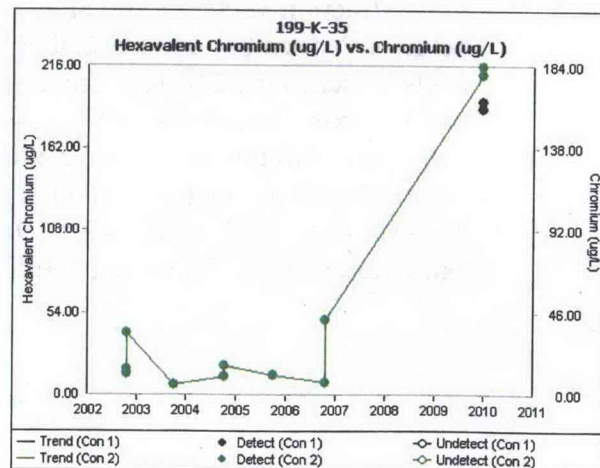
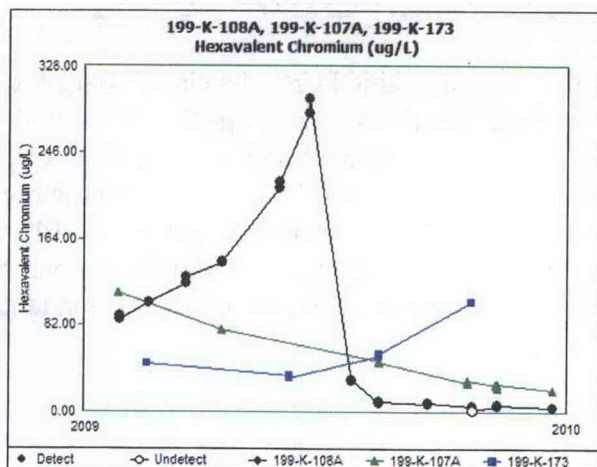
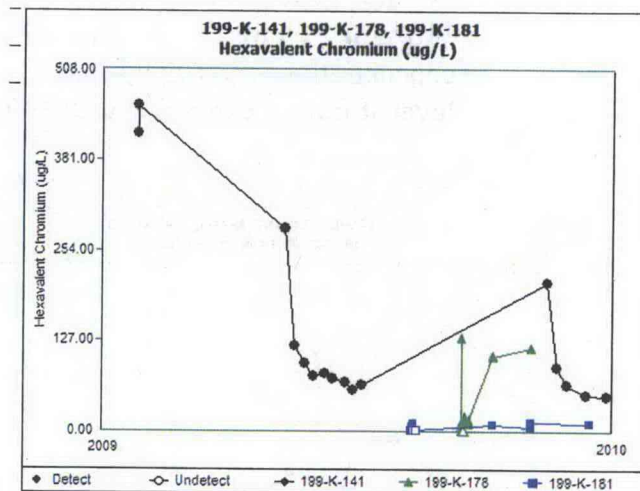
- KX Extraction Wells: Extraction well 199-K-150 maintained Cr6+ levels of 10 µg/L or below in November and December. Cr6+ at well 199-K-149 was 23 µg/L. Extraction wells closer to the 116-K-2 Trench remained above the standard and on declining or stable trends. Extraction wells 199-K-154 and K-163, at 81 µg/L and 78 µg/L, exhibit the highest Cr6+ concentration at KX, followed by 48 µg/L at K-161. Extraction well 199-K-141 was restarted after an outage of about 4 months and peaked at 209 µg/L in mid November, but declined to 49 µg/L at the end of December. In November, the Cr6+ concentration at new extraction well K-178 was 118 µg/L.



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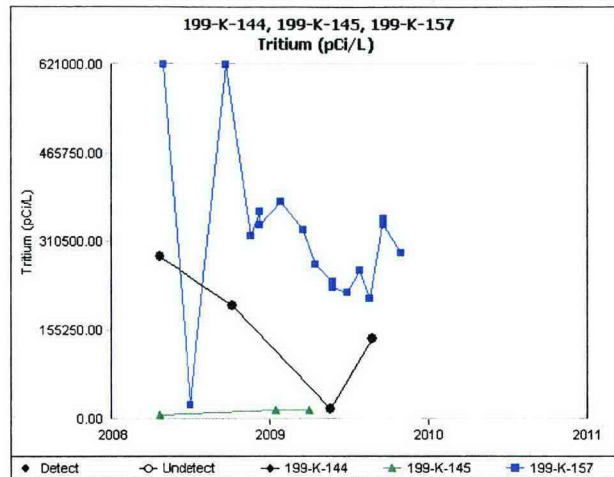


- KW Monitoring Wells: Cr6+ at K-108A increased over an 11-month period through June 2009, from 28 µg/L to 298 µg/L, but declined to less than 10 µg/L in September-November 2009. Well 199-K-173 increased from 55 µg/L to 104 µg/L Cr6+ between August and October 2009. Cr6+ concentrations at 199-K-107A declined through October and November and will soon be below 20 µg/L. Well 199-K-35, adjacent to the 183-KW sedimentation basin (under demolition) reported a 189 µg/L Cr6+ concentration following conversion from an injection well in December 2010.



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- KX/KR4 Monitoring Wells: October tritium levels at well K-157 were 290,000 pCi/L. New KX monitoring well at K-182 reported 75.4  $\mu\text{g/L}$   $\text{Cr6+}$  during development sampling in late December. At 122  $\mu\text{g/L}$  (October 2009), monitoring well 199-K-22 exhibits the highest  $\text{Cr6+}$  concentrations in this area.



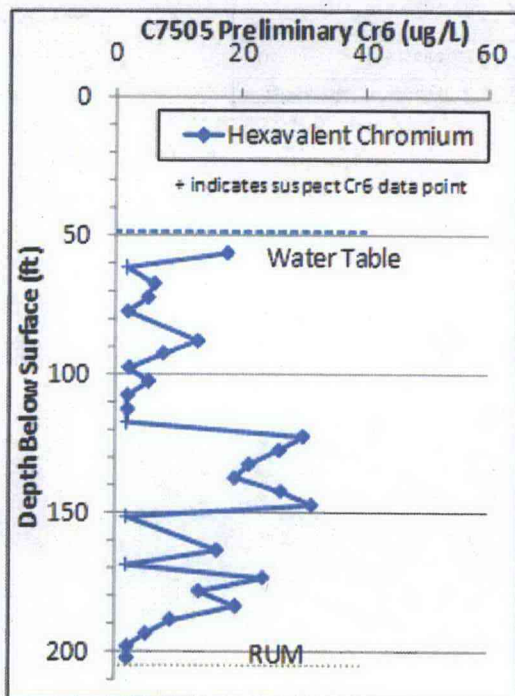
**100/300 Areas Unit Managers Meeting  
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**100-BC-5 Operable Units—Nathan Bowles / Mary Hartman**

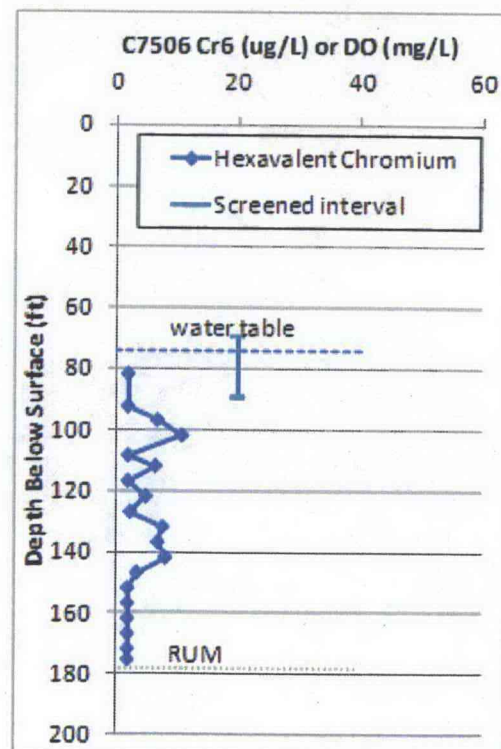
(M-15-67, 9/30/2009, Submit CERCLA RI/FS Work Plans for the 100-BC-1, 100-BC-2, and 100-BC-5 Operable Units.)

*Schedule Status- TPA milestone met by DOE/RL submittal of Draft A document to EPA on 9/28/09. EPA review comments have been received and the documents are being revised.*

New well C7505 (199-B5-5, located north of the 100-B-27 waste site) was originally drilled to a depth of approximately 215 ft. The Ringold upper mud was encountered at approximately 205 ft depth, which was deeper than expected. The screen will be set from 120 to 185 ft depth, which will include the entire portion of the aquifer with hexavalent chromium results  $>20 \mu\text{g/L}$ . During the original drilling effort, the drill casing diameter was reduced from 10-inch to 8-inch casing at 128.5 ft bgs. Because of the designed screen placement interval, the well was subsequently redrilled with 10-inch casing to 195 ft bgs in the same hole so it can be completed as an 8-inch well. Well completion efforts are now underway.



New well C7506 (199-B3-50, northeastern 100-B/C Area) reached the Ringold Upper Mud at a depth of 177 ft. The unconfined aquifer at this location is 103 ft thick. The well was completed with the screen across the water table. Chromium results during groundwater characterization were low and strontium-90 undetected.



Additional characterization data from wells C7505 and C7506 are being received and will be evaluated in the coming months.

Drilling of well C7507, located ~300 meters north of the 100-C-7 site, began in late December 2009. As of January 8, 2009, the drilling had advanced to approximately 120 ft bgs.



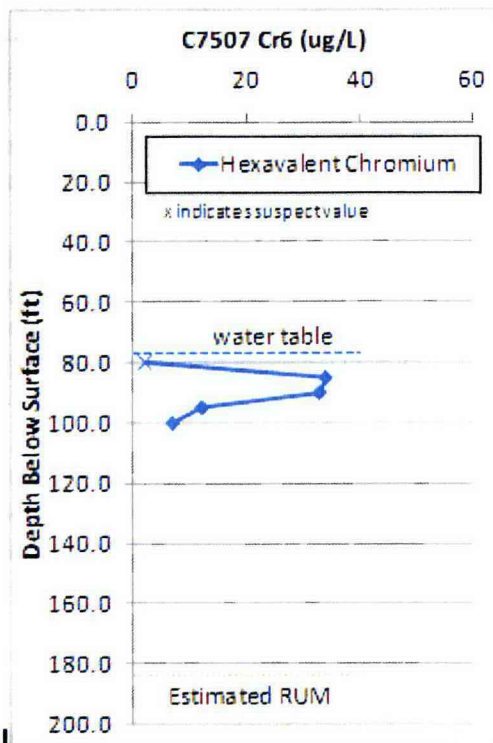
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Drilling of well C7665, located near the river, will begin after C7505 is completed.

As reported at the November UMM, in response to the preliminary WCH river-pore sampling results, an additional expedited well-sampling event was completed for three existing wells (199-B3-1, 199-B3-47, and 199-B5-1) along the river. Results were received from the lab, and hexavalent chromium concentrations remained within recently-observed ranges.

Results of October's sampling of wells 199-B8-7 and B8-8 (near 100-C-7) were received. Chromium concentrations continued to be low (9 and 13  $\mu\text{g/L}$ , respectively) and tritium remained at  $\sim 30,000$  pCi/L.

Planning and preparations were initiated and continue for collecting samples from the base of the 100-B-27 excavation site located directly south of the C7505 well-drilling location. The sampling instruction document has been finalized and concurred to by both DOE and EPA, and all site-related safety issues were resolved. These resolutions included WCH improving egress by building a new ramp to the base of the excavation, and administrative controls to mitigate any remaining sloping hazards. An Administrative Interface Agreement (AIA) was made with WCH to cover all ramp-improvement and sampling activities in the B-27 excavation. As part of the AIA and as a result of WCH completing the ramp improvement, the site is now under temporary CHPRC control until the sampling work is complete. On December 19, 2009, the sampling grid was laid out within the excavation base with all initial soil-sampling locations marked. On December 21, 2009, all of the marked sampling locations were surveyed to establish the initial sampling coordinates. Weather conditions (snow and frozen ground) initially delayed sampling work, but sampling activities have now commenced. As of January 10, 2010, all initial near-surface and saturated-subsurface soil samples were collected. Preliminary results have been received for some of the locations. Potential follow-up sampling may occur following the receipt and evaluation of this initial sampling effort.



A well-staking event was held with DOE and EPA on January 6, 2010 to support preparation for upcoming RI/FS work plan field investigation activities.

**300-FF-5 Operable Unit—Mark Kemner/Bob Peterson**

(M-15-71, 10/30/09, Submit CERCLA RI/FS Work Plan for the 300-FF-2 and 300-FF-5 Operable Units for groundwater and soil.)

Schedule Status: Milestone met on October 22, 2009

- Documents
  - Final EPA and Nez Perce Tribe comments have been received and are being addressed.



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- 300-FF-5 Operations and Maintenance Plan Activities (DOE/RL-95-73, Rev. 1)
  - *300 Area subregion:* The most recent results for contamination indicators are for samples collected during November and December 2009. Results are consistent with historical trends and expectations. In general, uranium concentrations are somewhat lower than in previous years. The most recent samples were collected January 5, 2010.
  - *300 Area Shoreline:* Aquifer tubes were also sampled in the November/December time frame, and some analytical results are now becoming available. At locations where results are available, uranium concentrations are consistent with those observed at near-river wells, and TCE concentrations remain high at the one tube that monitors the finer-grained interval of Ringold sediment.
  - *Special sampling downgradient of the 618-7 Burial Ground remediation site:* The most recent results are for samples collected in September 2009. Results continue to reflect downgradient migration of uranium/chromium contamination. The most recent samples were collected January 4, 2010, located downgradient from the site (quarterly frequency).
  - *Special sampling near the 618-1 Burial Ground remediation site:* The most recent results are for samples collected in December 2009, with no firm evidence to date of impacts to groundwater because of activities at 618-1. The most recent sampling occurred in December 2009 (monthly frequency).
  - *618-11 Burial Ground Subregion:* (...no change since November unit manager meeting). The most recent results for contamination indicators are for samples collected in September 2009. Tritium concentrations nearest the burial ground are decreasing or remaining relatively constant, while trends downgradient are gradually decreasing. The most recent samples were collected in December 2009.
  - *618-10 Burial Ground Subregion:* (...no change since November unit manager meeting). The most recent results are for samples collected in September and are consistent with historical trends and expectations. Concentrations for contamination indicators for all potential sources are below their respective drinking water standards. The most recent samples were those collected in late September.
- Other Activities:
  - *Treatability tests associated with uranium contamination (polyphosphate technology):* (...no new information to report since the November unit manager meeting).
  - *Integrated Field-Scale Research Challenge Project, 300 Area:* An infiltration test that started during October 2009 continues to monitor the injection of uncontaminated 300 Area groundwater. The test is focusing on the potential re-mobilization of uranium from the vadose zone. (<http://ifchanford.pnl.gov>)
  - *New publications:*
    - Bjornstad, B.N., J.A. Horner, V.R. Vermeul, D.C. Lanigan, and P.D. Thorne. 2009. *Borehole Completion and Conceptual Hydrogeologic Model for the IFRC Well Field, 300 Area, Hanford Site: Integrated Field Research Challenge Project.* PNNL-18340, April 2009. Pacific Northwest National Laboratory, Richland, Washington.

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- Wellman, D.M., E.M. Pierce, V.R. Vermeul, S.V. Mattigod, E.L. Richards, M.D. Williams, J.S. Fruchter, and J.P. Icenhower. 2009. "In Situ Uranium Stabilization through Polyphosphate Remediation: Development and Demonstration at the Hanford Site 300 Area, Washington State." Chapter 14 in: *Uranium: Compounds, Isotopes, and Applications*, Gerhardt H. Wolfe, editor. 2009 Nova Science Publishers, Inc., pp. 473 – 551.

ATT 1

## Attachment 2





## TPA Milestone M-16-56 (02/28/12)

### Milestone Description: Complete Interim Remedial Actions for 100-IU-2 & 100-IU-6 Waste Sites

[illegible]

### Activity /Actions Supporting Schedule

- Working to increase Load-out production starting in February.

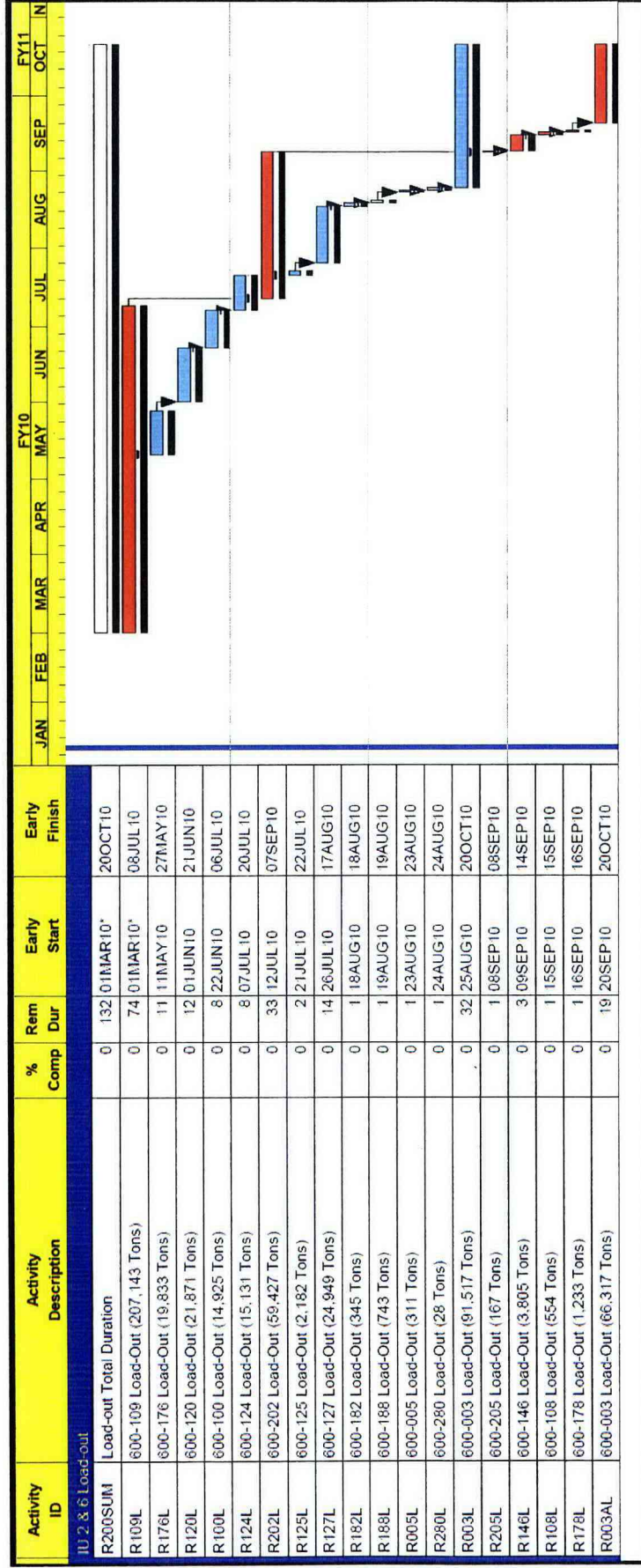
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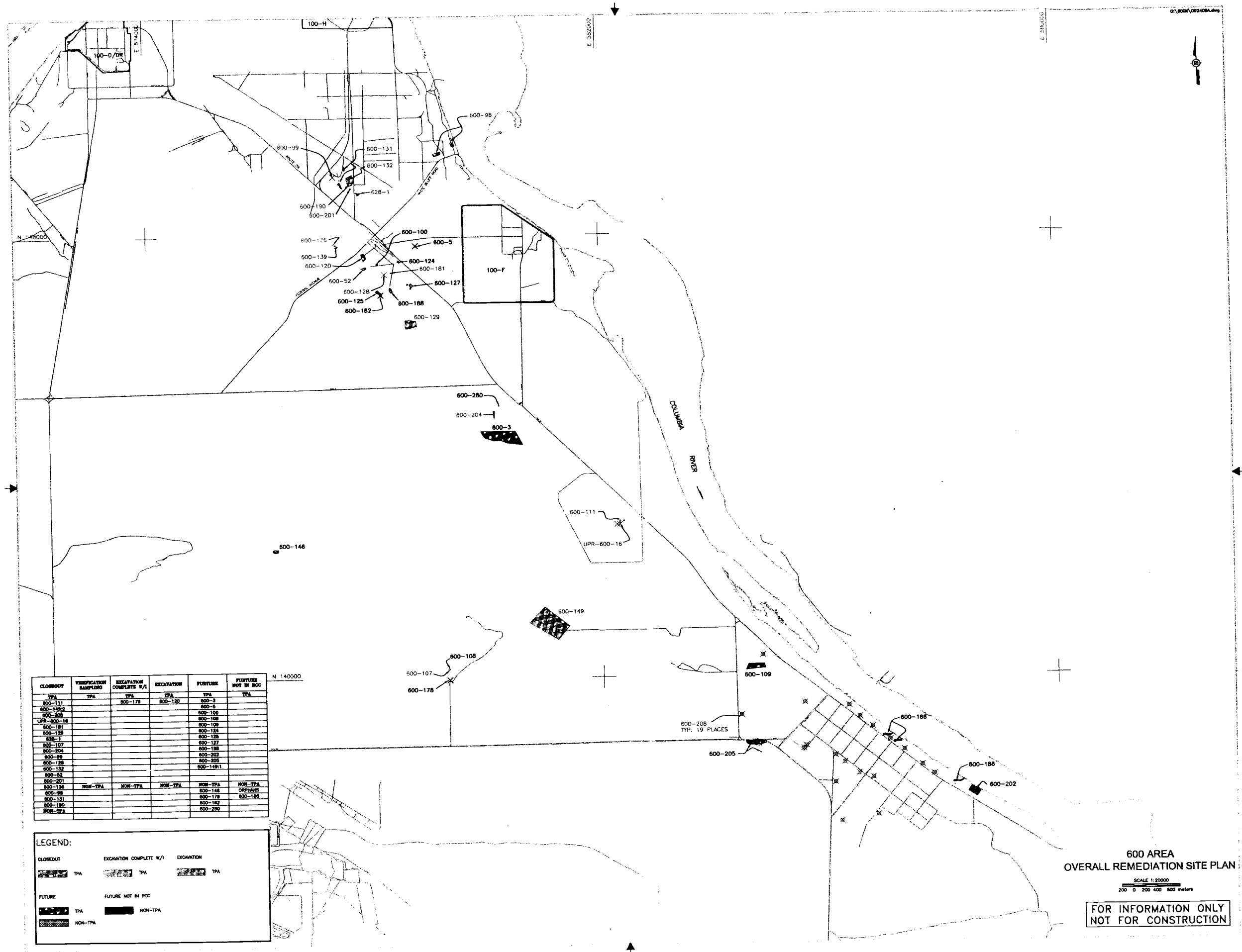


# Field Remediation IU-2/6

## TPA Milestone M-16-56 (02/28/12)

Milestone Description: Complete Interim Remedial Actions for 100-IU-2 & 100-IU-6 Waste Sites





# Attachment 3





# Attachment 4

1/13/10

# WORK INSTRUCTION

## FOR

### CONFIRMATORY SAMPLING OF THE 100-D-63, 100-D/DR SERVICE WATER PIPELINES

0	Approval to Sample	LDH	WST	WKH	MLP	
Rev.	Reason For Revision	Author	Technical Reviewer(s)	Technical Reviewer(s)	Approval Authority	Approval Date
RIVER CORRIDOR CLOSURE PROJECT		Job No. 14655				
		Work Instruction No. 0100D-WI-G0057				
		Sheet 1 of 39				

Figure 8. 100-D-63 Raw Water Test Pit Locations.

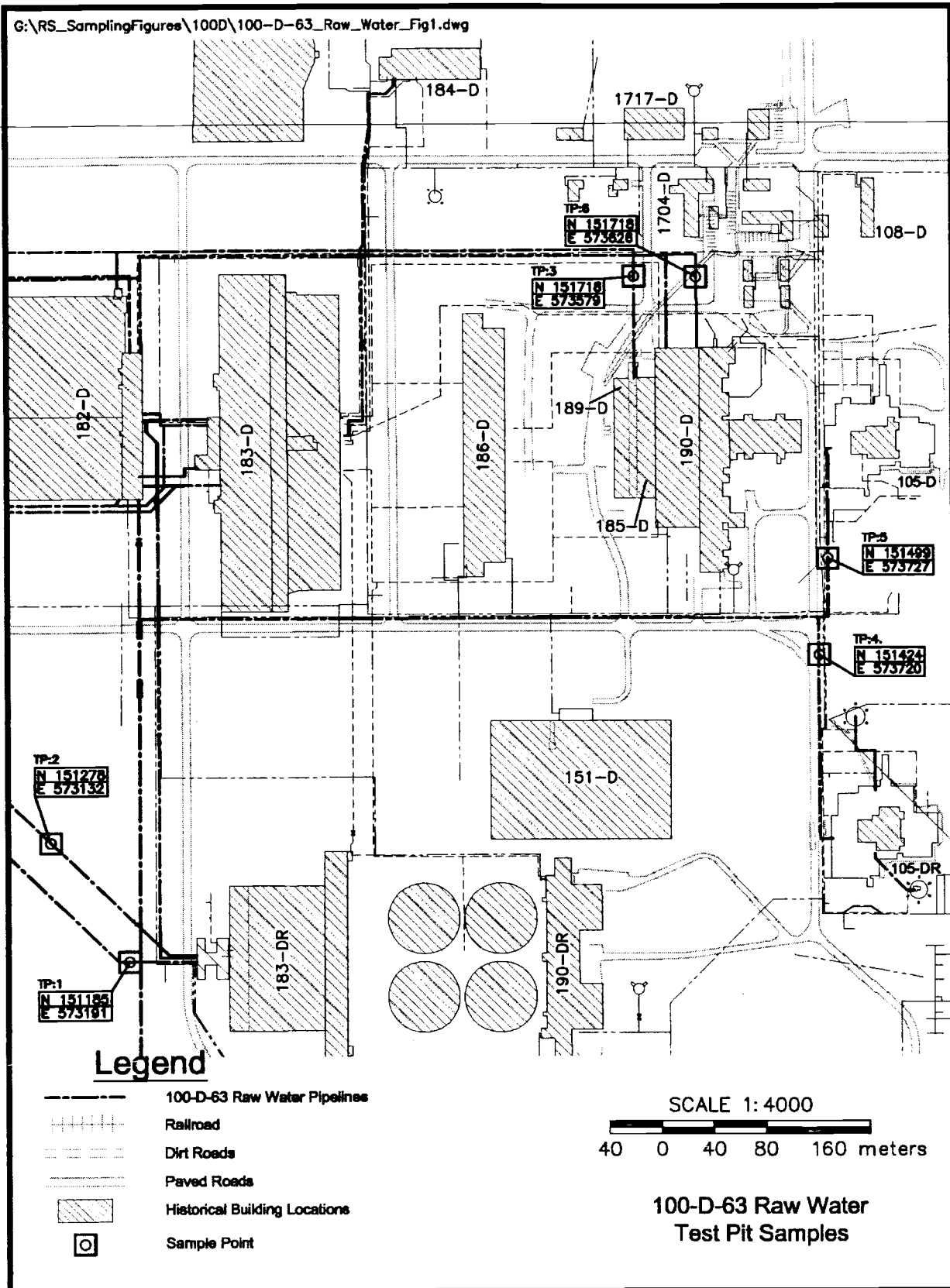
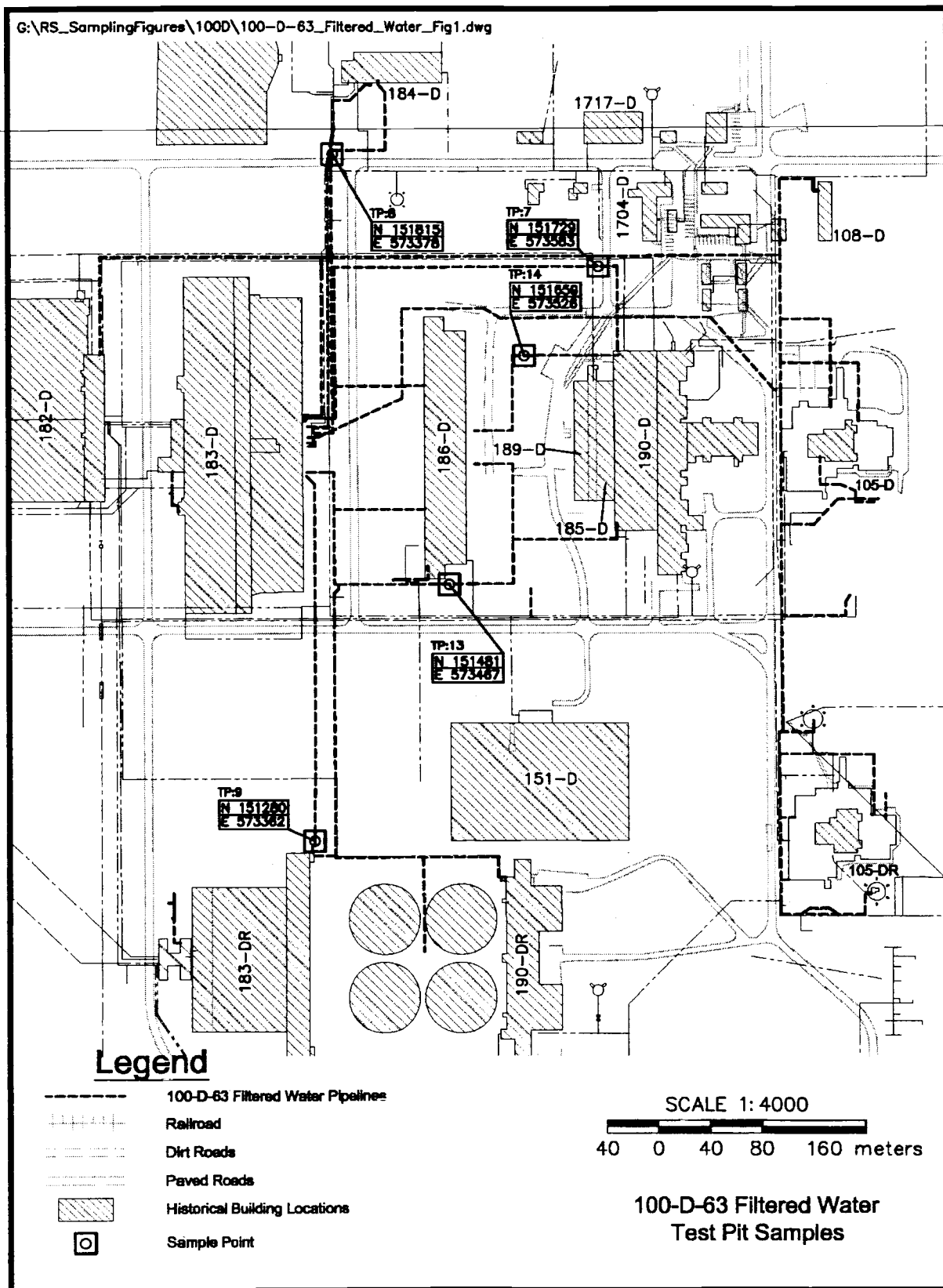


Figure 9. 100-D-63 Filtered Water Test Pit Locations.



9. During excavation, the field sampler will inspect the excavation and excavated material for the presence of stained soil, evidence of burning, asbestos-containing material, and/or debris. If anomalous media are discovered during excavation, the sampler will document the nature, quantity/volume, and location of the media in the field logbook based on visual evaluation. Representative samples of suspect material and potentially impacted underlying soils will be collected to support evaluation of hazardous constituents. If during excavation, stained soil is observed or if it appears that hazardous debris or material may have caused a release to the soil, a focused sample will be collected from the stained soil or from soil directly in contact with the hazardous debris or material.
10. The Sample Design and Cleanup Verification (SDCV) project manager will be contacted in the event that sampling at any of the test pits cannot be completed. An alternate location within the same service area will be chosen by the SDCV project manager for each test pit that is incomplete using the criteria presented in Section 5.4. The alternate coordinate locations will be recorded in the logbook in addition to the items listed for the general sampling protocol above.

A summary of the sampling requirements for the 100-D-63 pipeline is provided in Table 3.

**Table 3. 100-D-63 Sample Summary Table. (2 Pages)**

Sample Location	Service Area	Sample Media	HEIS Sample Number	Coordinate Locations	Sample Analysis
TP 1	181RW	Pipe contents	TBD	N 151185	GEA, gross alpha, gross beta, ICP metals <sup>a</sup> , mercury and hexavalent chromium.  VOA (if detected in the field), bulk asbestos (if suspect ACM is discovered in the field)
		Soil beneath pipeline	TBD	E 573191	
TP 2	181RW	Pipe contents	TBD	N 151278	
		Soil beneath pipeline	TBD	E 573132	
TP 3	181RW	Pipe contents	TBD	N 151718	
		Soil beneath pipeline	TBD	E 573579	
TP 4	182RW	Pipe contents	TBD	N 151424	
		Soil beneath pipeline	TBD	E 573720	
TP 5	182RW	Pipe contents	TBD	N 151499	
		Soil beneath pipeline	TBD	E 573727	
TP 6	182RW	Pipe contents	TBD	N 151718	
		Soil beneath pipeline	TBD	E 573626	
TP 7	183FW	Pipe contents	TBD	N 151729	
		Soil beneath pipeline	TBD	E 573583	
TP 8	183FW	Pipe contents	TBD	N 151815	
		Soil beneath pipeline	TBD	E 573378	
TP 9	183FW	Pipe contents	TBD	N 151280	
		Soil beneath pipeline	TBD	E 573362	
TP 10	183SW	Pipe contents	TBD	N 151854	
		Soil beneath pipeline	TBD	E 573626	
TP 11	183SW	Pipe contents	TBD	N 151484	
		Soil beneath pipeline	TBD	E 573655	
TP 12	183SW	Pipe contents	TBD	N 151151	

Table 3. 100-D-63 Sample Summary Table. (2 Pages)

Sample Location	Service Area	Sample Media	HEIS Sample Number	Coordinate Locations	Sample Analysis
		Soil beneath pipeline	TBD	E 573581	
		Pipe contents	TBD	N 151481	
TP 13	186FW	Soil beneath pipeline	TBD	E 573467	
		Pipe contents	TBD	N 151659	
TP 14	186FW	Soil beneath pipeline	TBD	E 573526	
		Pipe contents	TBD	N 151455	GEA, gross alpha, gross beta, ICP metals <sup>a</sup> , mercury and hexavalent chromium.
TP 15	190CW	Soil beneath pipeline	TBD	E 573633	
		Pipe contents	TBD	N 151454	VOA (if detected in the field), bulk asbestos (if suspect ACM is discovered in the field)
TP 16	190CW	Soil beneath pipeline	TBD	E 573243	
		Pipe contents	TBD	N 151255	
TP 17	190DRCW	Soil beneath pipeline	TBD	E 573506	
		Pipe contents	TBD	N 151058	
TP 18	190DRCW	Soil beneath pipeline	TBD	E 573504	
		Pipe contents	TBD	TBD	Same analytical list as corresponding primary sample
Duplicate	N/A	Soil beneath pipeline	TBD		
Equipment blanks	N/A	Silica sand	Multiple, TBD	N/A	ICP metals <sup>a</sup> , mercury, hexavalent chromium
N/A	N/A	Debris/anomalous media <sup>b</sup>	TBD	TBD	GEA, gross alpha, gross beta, ICP metals <sup>a</sup> , mercury and hexavalent chromium.  VOA (if detected in the field), bulk asbestos (if suspect ACM is discovered in the field); and TPH, PCBs, and SVOA and PAHs (if oily soil or evidence of burning is observed)

<sup>a</sup> The expanded list of ICP metals will be performed to include arsenic, antimony, barium, beryllium, boron, cadmium, chromium (total), cobalt, copper, lead, manganese, molybdenum, nickel, selenium, silver, vanadium, and zinc in the analytical results package.

ACM = asbestos-containing material

GEA = gamma energy analysis

ICP = inductively coupled plasma

N/A = not applicable

PAH = polynuclear aromatic hydrocarbons

PCB = polychlorinated biphenyl

SVOA = semivolatile organic analyses

TBD = to be determined

TPH = total petroleum hydrocarbon

VOA = volatile organic analysis

Original pages with mark-ups

## WORK INSTRUCTION

FOR

### CONFIRMATORY SAMPLING OF THE 100-D-63, 100-D/DR SERVICE WATER PIPELINES

0	Approval to Sample	LDH	WST	WKH	MLP	
Rev.	Reason For Revision	Author	Technical Reviewer(s)	Technical Reviewer(s)	Approval Authority	Approval Date
RIVER CORRIDOR CLOSURE PROJECT		Job No. 14655				
		Work Instruction No. 0100D-WI-G0057				
		Sheet 1 of 39				



9. During excavation, the field sampler will inspect the excavation and excavated material for the presence of stained soil, evidence of burning, asbestos-containing material, and/or debris. If anomalous media are discovered during excavation, the sampler will document the nature, quantity/volume, and location of the media in the field logbook based on visual evaluation. Representative samples of suspect material and potentially impacted underlying soils will be collected to support evaluation of hazardous constituents. If during excavation, stained soil is observed or if it appears that hazardous debris or material may have caused a release to the soil, a focused sample will be collected from the stained soil or from soil directly in contact with the hazardous debris or material.
10. The Sample Design and Cleanup Verification (SDCV) project manager will be contacted in the event that sampling at any of the test pits cannot be completed. An alternate location within the same service area will be chosen by the SDCV project manager for each test pit that is incomplete using the criteria presented in Section 5.4. The alternate coordinate locations will be recorded in the logbook in addition to the items listed for the general sampling protocol above.

A summary of the sampling requirements for the 100-D-63 pipeline is provided in Table 3.

**Table 3. 100-D-63 Sample Summary Table. (2 Pages)**

Sample Location	Service Area	Sample Media	HEIS Sample Number	Coordinate Locations	Sample Analysis
TP 1	181RW	Pipe contents	TBD	N 151185	GEA, gross alpha, gross beta, ICP metals <sup>a</sup> , mercury and hexavalent chromium.
		Soil beneath pipeline	TBD	E 573191	
TP 2	181RW	Pipe contents	TBD	N <del>151278</del>	VOA (if detected in the field), bulk asbestos (if suspect ACM is discovered in the field)
		Soil beneath pipeline	TBD	E <del>573132</del>	
TP 3	181RW	Pipe contents	TBD	N 151718	
		Soil beneath pipeline	TBD	E 573579	
TP 4	182RW	Pipe contents	TBD	N <del>151424</del>	
		Soil beneath pipeline	TBD	E <del>573720</del>	
TP 5	182RW	Pipe contents	TBD	N 151499	
		Soil beneath pipeline	TBD	E 573727	
TP 6	182RW	Pipe contents	TBD	N 151718	
		Soil beneath pipeline	TBD	E 573626	
TP 7	183FW	Pipe contents	TBD	N 151729	
		Soil beneath pipeline	TBD	E 573583	
TP 8	183FW	Pipe contents	TBD	N 151815	
		Soil beneath pipeline	TBD	E 573378	
TP 9	183FW	Pipe contents	TBD	N 151280	
		Soil beneath pipeline	TBD	E 573362	
TP 10	183SW	Pipe contents	TBD	N 151854	
		Soil beneath pipeline	TBD	E 573626	
TP 11	183SW	Pipe contents	TBD	N 151484	
		Soil beneath pipeline	TBD	E 573655	
TP 12	183SW	Pipe contents	TBD	N 151151	

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Table 3. 100-D-63 Sample Summary Table. (2 Pages)

Sample Location	Service Area	Sample Media	HEIS Sample Number	Coordinate Locations	Sample Analysis
TP 13	186FW	Soil beneath pipeline	TBD	E 573581	
		Pipe contents	TBD	N 151481	
		Soil beneath pipeline	TBD	E 573467	
TP 14	186FW	Pipe contents	TBD	N 151659	
		Soil beneath pipeline	TBD	E 573526	
TP 15	190CW	Pipe contents	TBD	N 151455	GEA, gross alpha, gross beta, ICP metals <sup>a</sup> , mercury and hexavalent chromium.
		Soil beneath pipeline	TBD	E 573633	
TP 16	190CW	Pipe contents	TBD	N 151454	
		Soil beneath pipeline	TBD	E 573243	
TP 17	190DRCW	Pipe contents	TBD	N 151255	VOA (if detected in the field), bulk asbestos (if suspect ACM is discovered in the field)
		Soil beneath pipeline	TBD	E 573506	
TP 18	190DRCW	Pipe contents	TBD	N 151058	
		Soil beneath pipeline	TBD	E 573504	
Duplicate	N/A	Pipe contents	TBD	TBD	Same analytical list as corresponding primary sample
		Soil beneath pipeline	TBD		
Equipment blanks	N/A	Silica sand	Multiple, TBD	N/A	ICP metals <sup>a</sup> , mercury, hexavalent chromium
N/A	N/A	Debris/anomalous media <sup>b</sup>	TBD	TBD	GEA, gross alpha, gross beta, ICP metals <sup>a</sup> , mercury and hexavalent chromium.  VOA (if detected in the field), bulk asbestos (if suspect ACM is discovered in the field); and TPH, PCBs, and SVOA and PAHs (if oily soil or evidence of burning is observed)

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<sup>a</sup> The expanded list of ICP metals will be performed to include arsenic, antimony, barium, beryllium, boron, cadmium, chromium (total), cobalt, copper, lead, manganese, molybdenum, nickel, selenium, silver, vanadium, and zinc in the analytical results package.

ACM = asbestos-containing material

GEA = gamma energy analysis

ICP = inductively coupled plasma

N/A = not applicable

PAH = polynuclear aromatic hydrocarbons

PCB = polychlorinated biphenyl

SVOA = semivolatile organic analyses

TBD = to be determined

TPH = total petroleum hydrocarbon

VOA = volatile organic analysis

Figure 8. 100-D-63 Raw Water Test Pit Locations.

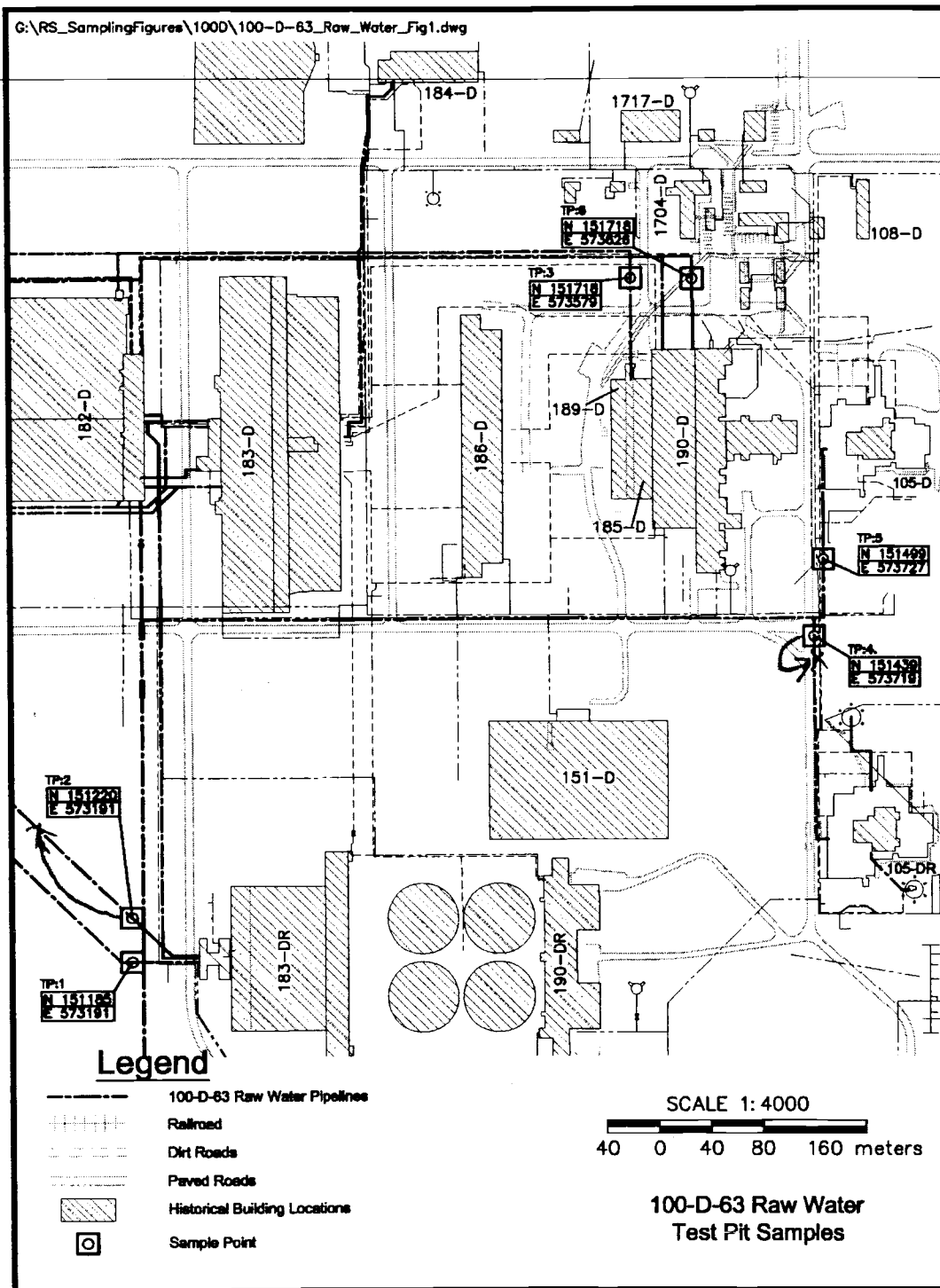
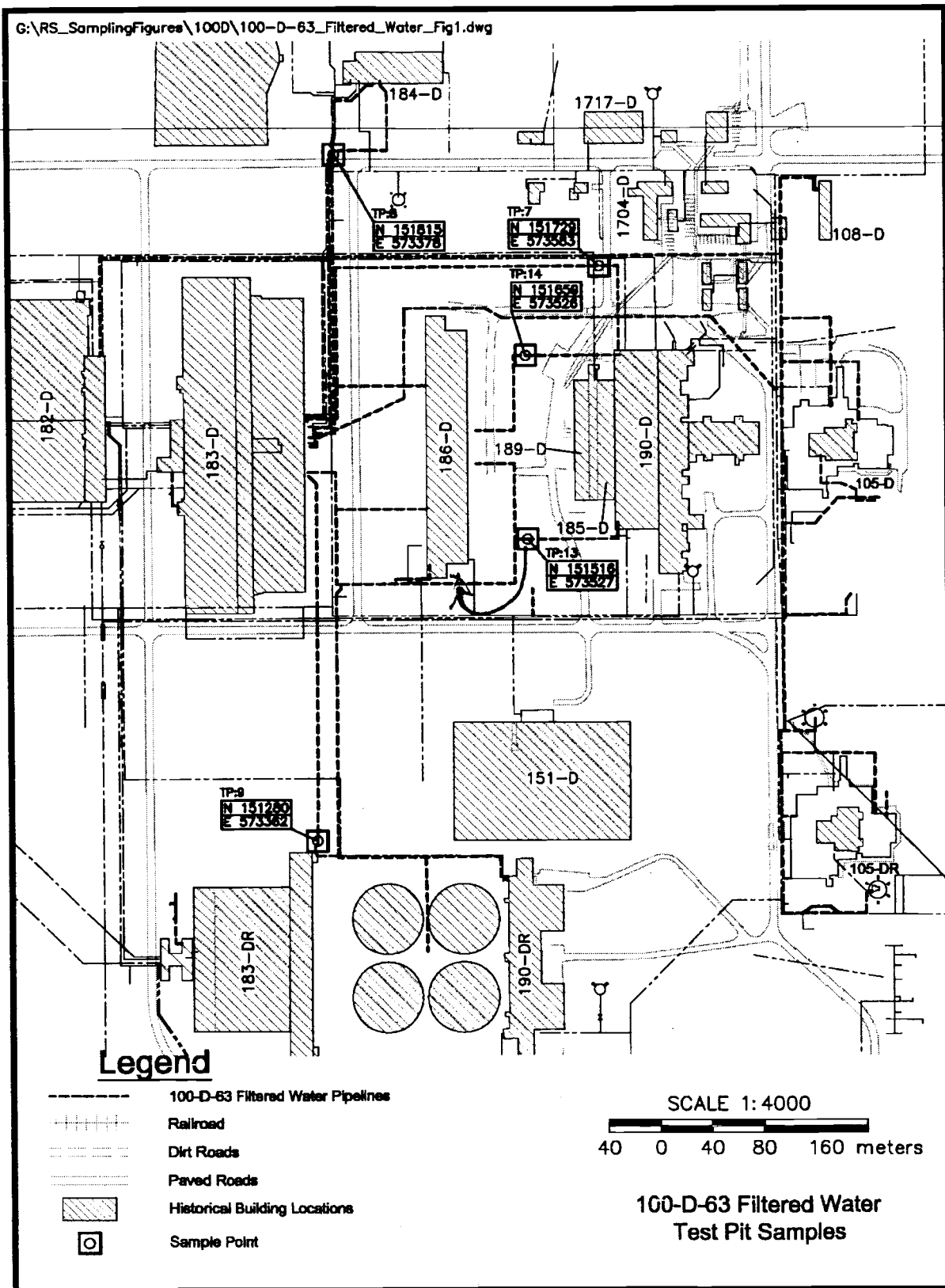


Figure 9. 100-D-63 Filtered Water Test Pit Locations.



# Attachment 5

**^WCH Document Control**

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**From:** McCurley, Clay D  
**Sent:** Wednesday, December 02, 2009 1:53 PM  
**To:** ^WCH Document Control  
**Subject:** TPA-CN-310

**Attachments:** TPA-CN-310 Final.pdf

Please log the attachment into the document control system and let me know what the CCN is. Thanks.

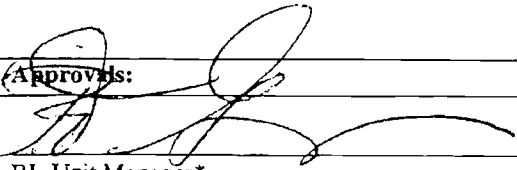
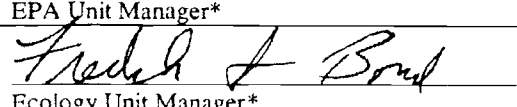
Clay McCurley  
942-8928



TPA-CN-310  
Final.pdf (181 KB)



**Change Notice for Modifying Approved Documents/ Workplans  
In Accordance with the Tri-Party Agreement Action Plan,  
Section 9.0, Documentation and Records**

<b>Change Number</b>	<b>Document Submitted Under Tri-Party Agreement Milestone</b>		<b>Date:</b>	
TPA-CN-310	NA		November 3, 2009	
<b>Document Number and Title:</b> DOE/RL-2000-57, Rev. 2, <i>Removal Action Work Plan for 105-D and 105-H Building Interim Safe Storage Projects and Ancillary Buildings</i>			<b>Date Document Last Issued:</b> September 2002	
<b>Originator:</b> Clay McCurley		<b>Phone:</b> 942-8928		
<p><b>Description of Change:</b> Include D4 of the following facilities in the scope of the removal action; 183-D Filter Plant, 1902-D (Water Tower) and 183-H (West Clearwell only).</p> <p>Section 1.2 Scope and Objectives of the Removal Action will be modified to include the facilities listed above in the scope of removal action. Changes to the text are included in attachment 1. Inclusion of these facilities will be footnoted as follows: "Although these structures were not included in the original EE/CA for this project, they have been included in this plan to provide a mechanism for cleanup of these legacy sites".</p> <p>Section 1.3 Facility History and Description will be modified to capture these facility descriptions within section 1.3.2.3. Changes to the text are included in attachment 1.</p>				
<p><b>Justification and Impacts of Change:</b> Inclusion of these sites will ensure completeness of removal actions at the "D" and "H" areas.</p> <p>Additionally, these facilities are anticipated to contain only minimal radiological contamination; as such neither a Potential-To-Emit calculation nor an air monitoring plan is warranted.</p>				
<b>Approvals:</b>				
 RL Unit Manager*		11/9/09 Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
N/A EPA Unit Manager*		_____ Date	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
 Ecology Unit Manager*		11/10/09 Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved

\*Send approved form to FH TPAI, H8-12, and the  
Administrative Record, H6-08



Scope changes to DOE/RL-2000-57, Rev. 2, *Removal Action Work Plan for 105-D and 105-H Building Interim Safe Storage Projects and Ancillary Buildings*.

## 1.2. SCOPE AND OBJECTIVES OF THE REMOVAL ACTION (*second paragraph only*)

The scope of the approved removal action includes the 105-D and 105-H Reactor buildings (except for the reactor blocks) and the ancillary facilities and structures, all of which are described in Section 1.3.2. The 103-D Unirradiated Fuel Element Storage Building, the 190-DR Process Water Pump House, the below-grade structures associated with the 105-D water tower<sup>1</sup>, the 183-D Filter Plant<sup>1</sup>, the 1902-D Water Tower<sup>1</sup>, the 183-H West Clearwell<sup>1</sup>, the 1713-H Warehouse, and the 1720-HA Arsenal are included in this removal action.

Deleted: Clearwells

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**1.3.2.3 Ancillary Buildings Covered by the Removal Action.** In addition to the 105-H and 105-D Reactor buildings, seven ancillary buildings and associated facilities (e.g., underground tunnels and ducting) are covered by the removal action.

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1.3.2.3.6 183-D Filter Plant. The 183-D Filter Plant, located directly west of the 105-D Reactor Building, was designed to treat raw river water before it entered the reactor. It consists of the following structures: Head House, Flocculation and Sedimentation Basins, Filter Building, Clearwells and Pump House.

Deleted: Clearwells

Deleted: Each of the two clearwells, with a total capacity of 38 million liters (10 million gallons), were covered, and made of reinforced concrete.

1.3.2.3.7 1902-D Water Tower. The 1902-D Sanitary Water Tank is an elevated cylindrical storage tank with a conical roof. The total height of the structure is approximately 36.6 meters, with the steel tank itself accounting for about 7.5 meters. The capacity of the tank is 378,500 liters (100,000 gallons).

1.3.2.3.8 183-H Clearwells. Each of the two clearwells, with a total capacity of 38 million liters (10 million gallons), were covered, and made of reinforced concrete. The removal action covers only the west clearwell.

1.3.2.3.9 Other Impacted Sites and Facilities

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Deleted: this

<sup>1</sup> Although these structures were not included in the original EE/CA for this project, they have been included in this plan to provide a mechanism for cleanup of these legacy sites.

## TPA-CN-310 – Attachment 1

Scope changes to DOE/RL-2000-57, Rev. 2, *Removal Action Work Plan for 105-D and 105-H Building Interim Safe Storage Projects and Ancillary Buildings*.

### **1.2. SCOPE AND OBJECTIVES OF THE REMOVAL ACTION** (*second paragraph only*)

The scope of the approved removal action includes the 105-D and 105-H Reactor buildings (except for the reactor blocks) and the ancillary facilities and structures, all of which are described in Section 1.3.2. The 103-D Unirradiated Fuel Element Storage Building, the 190-DR Process Water Pumphouse, the below-grade structures associated with the 105-D water tower<sup>1</sup>, the 183-D Filter Plant<sup>1</sup>, the 1902-D Water Tower<sup>1</sup>, the 183-H West Clearwell<sup>1</sup>, the 1713-H Warehouse, and the 1720-HA Arsenal are included in this removal action.

**1.3.2.3 Ancillary Buildings Covered by the Removal Action.** In addition to the 105-H and 105-D Reactor buildings, seven ancillary buildings and associated facilities (e.g., underground tunnels and ducting) are covered by the removal action.

**1.3.2.3.6 183-D Filter Plant.** The 183-D Filter Plant, located directly west of the 105-D Reactor Building, was designed to treat raw river water before it entered the reactor. It consists of the following structures: Head House, Flocculation and Sedimentation Basins, Filter Building, Clearwells and Pump House.

**1.3.2.3.7 1902-D Water Tower.** The 1902-D Sanitary Water Tank is an elevated cylindrical storage tank with a conical roof. The total height of the structure is approximately 36.6 meters, with the steel tank itself accounting for about 7.5 meters. The capacity of the tank is 378,500 liters (100,000 gallons).

**1.3.2.3.8 183-H Clearwells.** Each of the two clearwells, with a total capacity of 38 million liters (10 million gallons), were covered, and made of reinforced concrete. The removal action covers only the west clearwell.

**1.3.2.3.9 Other Impacted Sites and Facilities**

---

<sup>1</sup> Although these structures were not included in the original EE/CA for this project, they have been included in this plan to provide a mechanism for cleanup of these legacy sites.

# Attachment 6

2.5.16

**100 Area D4/ISS Status**  
January 14, 2010  
100/300 Area Combined Unit Manager Meeting

**WCH D4 Completed / On-going Activities**

- 105NE Fission Product Trap
  - Fixative applied to the access tunnel as well as the exterior portions of equipment, valves and piping within the trap
  - 12" and 24" lines tapped; verified no liquids present
  - Apply fixative to the interior portions of piping within the trap (to begin this weekend)
  - Working weekends only (Fri/Sat) due to proximity of 105N D4 activities during the week
- 181N River Pumphouse
  - Component removal work package complete, crew will mobilize beginning week of 1/18/10
- 1902D Water Tower
  - Finalized work package; tower expected to be toppled today (weather dependent)
- 1310N Golf Ball Facility (including 1310 Silo)
  - Began golf ball foundation demolition and waste loadout
  - Silo demolition preparations began 1/13/10 expected to continue ~ 1 week, to include: fixative application to internal portions of piping as well as the exterior portions of equipment, valves and piping within the silo
- 117N Exhaust Air Filter House
  - Completed demolition preparations

**WM Dickson ISS/SSE Subcontractor Completed / On-going Activities**

- Continued demolition of the north (plant north) area of the 105N reactor facility
- Work package development for demolition of the west (plant west) area of the 105N reactor facility
- Handrail installed on roof edge of 109N heat exchanger facility in preparation for Safe Storage Enclosure (SSE) roof placement
- Completed demolition of the 105N control room

**Proposed work through 2/28/10**

- 105NE Fission Product Trap
  - Finalize work package for cyclone separator removal / remove cyclone separator
  - Finalize work package for grout placement within the trap (radiological control) / place grout in trap
- 181N River Pumphouse
  - Continue component removal and waste loadout
- 1902D Water Tower
  - Debris size reduction and waste loadout
- 1310N Golf Ball Facility (including 1310 Silo)
  - Below-grade demolition of the golf ball foundation
  - Above- and below-grade demolition of the silo
  - Removal of all piping within the layback of the demolition



# Attachment 7

## Cathel, Robert L

---

**From:** Bond, Rick (ECY) [FBON461@ECY.WA.GOV]  
**Sent:** Wednesday, December 09, 2009 10:36 AM  
**To:** Cathel, Robert L; Ayres, Jeffrey M; Guercia, Rudolph F; Chance, Joanne C  
**Cc:** Dieterle, Steven E; Trevino, Ruben A; McCurley, Clay D  
**Subject:** RE: Proposal to leave certain ACM along 109-N SSE boundary wall

Bob,  
Ecology concurs with the approach to leave the ACM in place along the SSE wall at the 109-N facility.

## Rick Bond

Facility Transition Project Manager  
Washington State  
Department of Ecology  
FBON461@ECY.WA.GOV  
(509) 372-7885

---

**From:** Cathel, Robert L [mailto:rlcathel@wch-rcc.com]  
**Sent:** Thursday, December 03, 2009 8:48 AM  
**To:** Bond, Rick (ECY); Ayres, Jeff (ECY); Guercia, Rudolph F; Chance, Joanne C  
**Cc:** Dieterle, Steven E; Trevino, Ruben A; McCurley, Clay D  
**Subject:** Proposal to leave certain ACM along 109-N SSE boundary wall

Rick,

Please review the attached proposed agreement to leave certain ACM in place along the SSE wall of the 109-N Facility. Please let me know if Ecology concurs with the approach. If Ecology concurs, I will submit the agreement between DOE and Ecology at the next UMM for inclusion in the minutes. Also, please contact me with any questions or concerns.

Jeff,

The "Mastic Example" photos are provided per your request.

Thanks,  
Bob Cathel  
100-N Environmental Project Lead

<< File: Agreement to leave ACM along SSE Wall.doc >> << File: Cold Joint Example.jpg >> << File: Mastic Example 1.jpg >> << File: Mastic Example 2.jpg >>

## Cathel, Robert L

---

**From:** Cathel, Robert L  
**Sent:** Thursday, December 03, 2009 8:48 AM  
**To:** Bond, Fredrick W; Ayres, Jeffrey M; Guercia, Rudolph F; Chance, Joanne C  
**Cc:** Dieterle, Steven E; Trevino, Ruben A; McCurley, Clay D  
**Subject:** Proposal to leave certain ACM along 109-N SSE boundary wall

**Attachments:** Agreement to leave ACM along SSE Wall.doc; Cold Joint Example.jpg; Mastic Example 1.jpg; Mastic Example 2.jpg

Rick,

Please review the attached proposed agreement to leave certain ACM in place along the SSE wall of the 109-N Facility. Please let me know if Ecology concurs with the approach. If Ecology concurs, I will submit the agreement between DOE and Ecology at the next UMM for inclusion in the minutes. Also, please contact me with any questions or concerns.

Jeff,

The "Mastic Example" photos are provided per your request.

Thanks,  
Bob Cathel  
100-N Environmental Project Lead



Agreement to leave  
ACM along S...



Cold Joint  
Example.jpg (345 KB)



Mastic Example  
1.jpg (91 KB)



Mastic Example  
2.jpg (107 KB)

## **Agreement between DOE and Ecology to leave ACM in-situ along 109-N SSE boundary wall**

Along the outside of the SSE wall on the south side of the 109-N Heat Exchanger Building exists remnants of cold joints between the wall and the removed turbine bays. Photographs 1 and 2 shows the cold joints along the wall, which run the entire length of the facility (on the south side) from approximately the minus 16-foot level to the zero-foot level. They appear to be constructed of a cellulosic fiber mat, approximately 12 - 24 inches wide and 1 inch thick. This mat was adhered to the concrete wall using mastic. This mastic was troweled onto the wall; each application approximately 6 inches in diameter spaced every 1 - 2 feet to ensure adhesion of the mat to the wall (Photograph 3 shows an example of the mastic application). The cellulosic mat and mastic has been sampled and analyzed for asbestos. The result for the cellulosic mat was that no asbestos material was detected; however, the mastic contains asbestos - Chrysotile < 20 - <= 30% concentration.

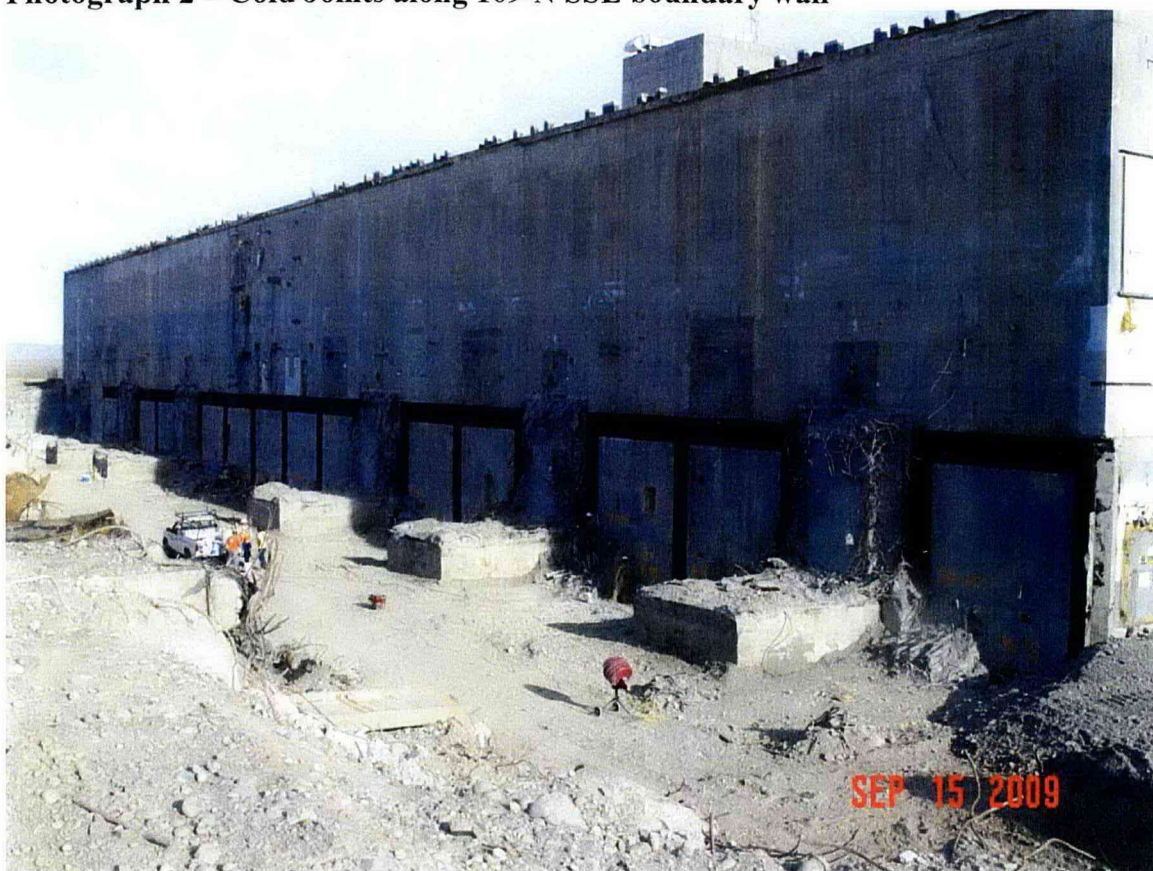
As can be seen in the photographs, the cellulosic mat and mastic remains tightly adhered to the wall, with no evidence of it coming loose. To remove this material from this wall would place WCH D4 personnel at risk with very limited benefit. Due to these risks DOE and its subcontractor (WCH) recommend leaving this material in place. The area along the wall will be backfilled with clean soil covering all portions of the mat until final disposition of the entire 105-N/109-N facility. This information would be captured in the Facility Status Change Form for the 109-N facility and placed in the administrative record.

**Photograph 1 – Cold Joints along 109-N SSE boundary wall**





**Photograph 2 – Cold Joints along 109-N SSE boundary wall**



**Photograph 3 – Mastix Application along 109-N SSE boundary wall**





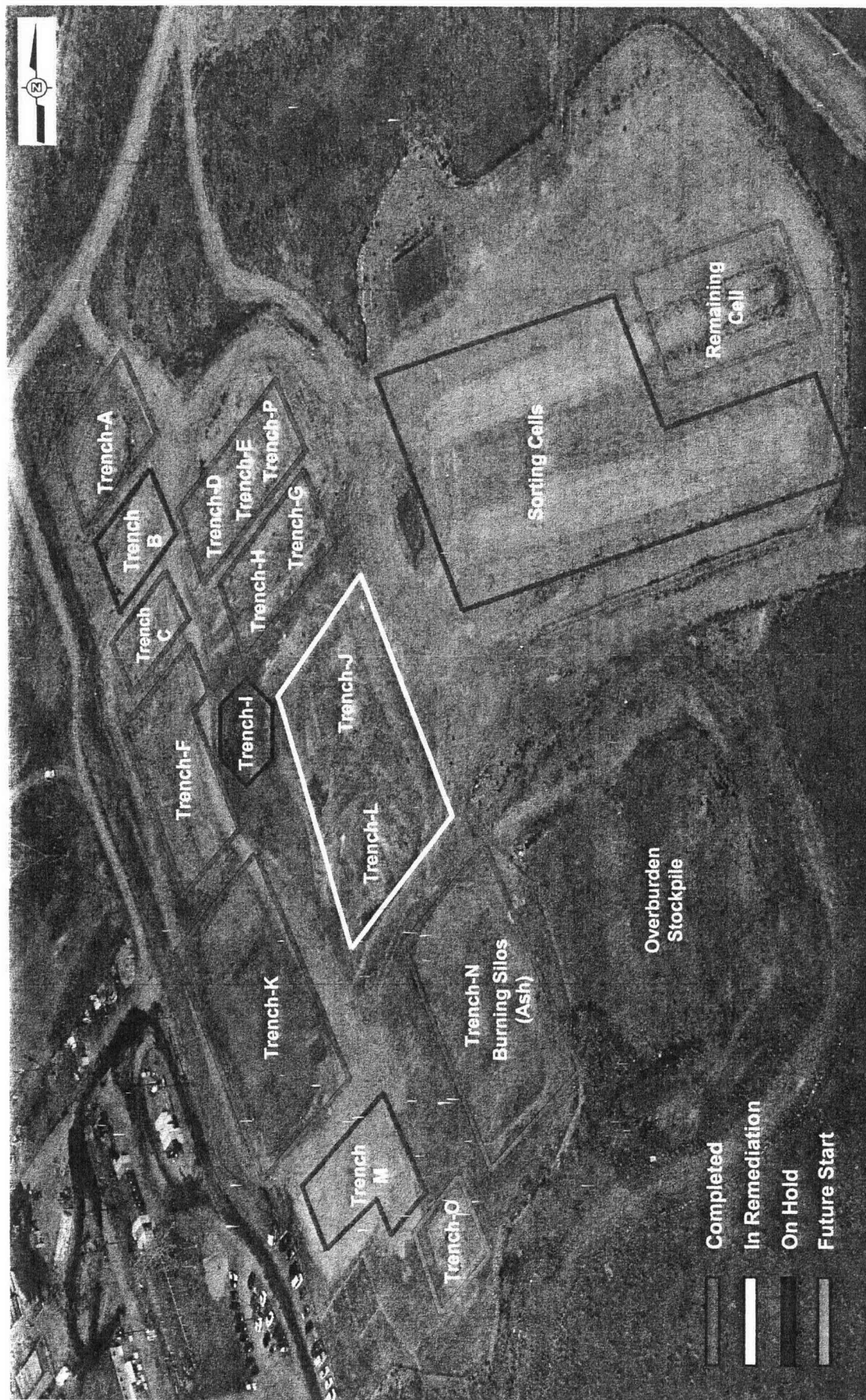


SEP 15 2009



# Attachment 8

118-K



# Attachment 9



Field Remediation  
100 BC Area  
TPA Milestone M-16-94 (11-30-10)

Milestone Description: Complete Interim Remedial Actions at 100-BC

Activity ID	Activity Description	%	Rem Dur	Early Start	Early Finish	FY10												FY11											
						JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
100BC																													
COB27E	Prepare Closure Doc for 100-B-27 (first RSVP)	75	23	22SEP09A	24FEB10																								
COB22E	Prepare Closure Document for 100-B-22.2	50	65	15OCT09A	10MAY10																								
BB521F	Backfill 100-BC sites except B-27	100	0	03DEC09A	07JAN10A																								
BCREVEG	Reveg 100-BC sites except B-27	20	9	11JAN10A	28JAN10																								
BB521F1	Backfill 100-B-27	0	19	18JAN10*	11FEB10																								
BB521H	Post Backfill Survey 100-BC sites	0	8	16FEB10	01MAR10																								
BCREVEG1	Reveg 100-B-27	0	4	18FEB10	24FEB10																								
C810OCT138	TPA M-16-94 Comp IRA 100 B/C	0	0		10MAY10																								

due date 30-Nov-10

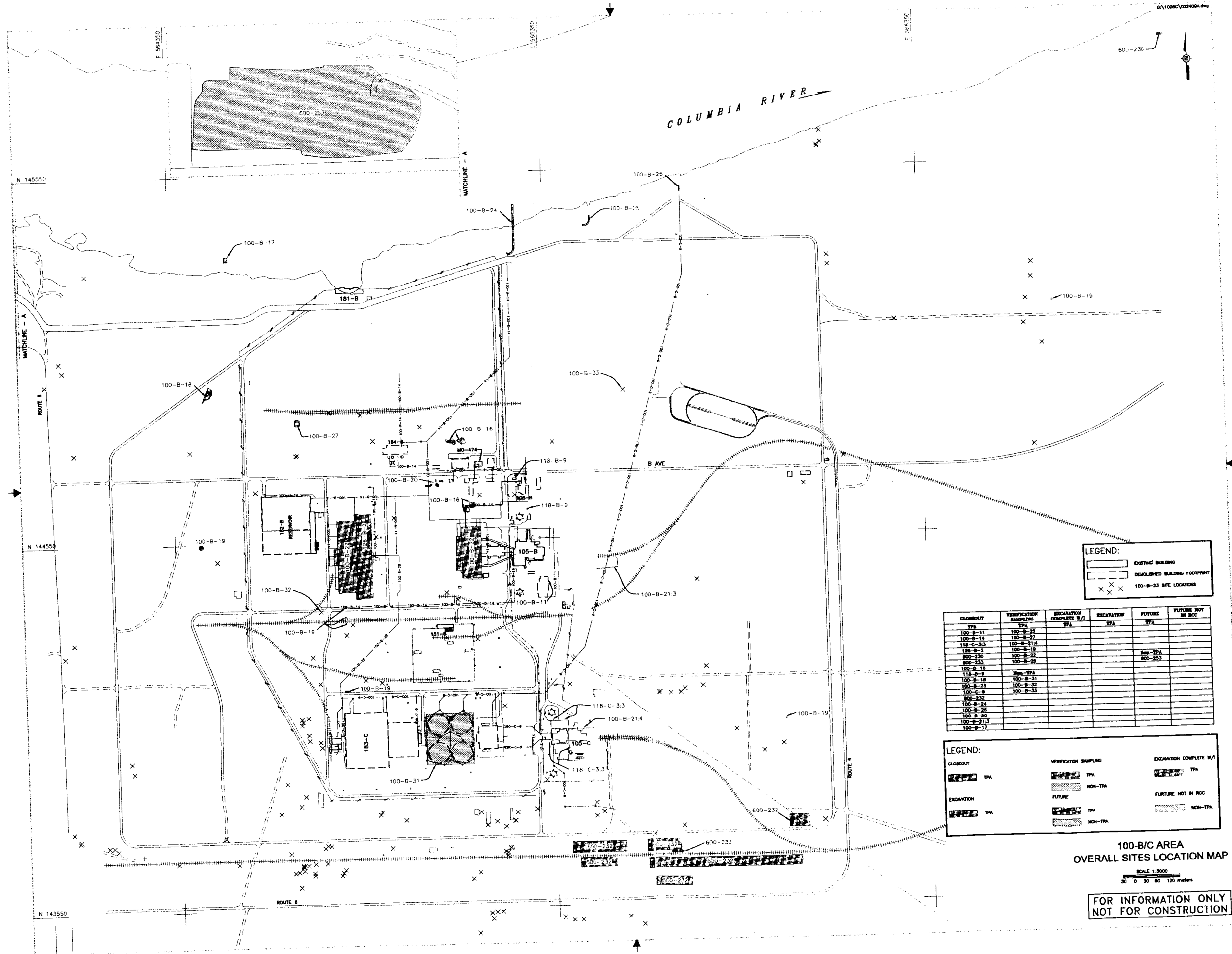
ACTIVITIES / ACTIONS SUPPORTING SCHEDULE

- None.

ISSUE / CONCERNS

- Ground water sampling campaign at 100-B-27 will impact the backfill costs and the backfill schedule.





**LEGEND:**

- EXISTING BUILDING
- DEMOLISHED BUILDING FOOTPRINT
- x 100-B-25 SITE LOCATIONS

CLOSBOUT	VERIFICATION SAMPLING	EXCAVATION COMPLETE W/	EXCAVATION	FUTURE	FUTURE NOT IN ROC
TPA	TPA	TPA	TPA	TPA	
100-B-11	100-B-25				
100-B-14	100-B-27				
118-C-3.3	100-B-21.4				
100-B-2				Non-TPA	
800-230	100-B-18			800-253	
800-233	100-B-22				
100-B-18	100-B-28				
118-B-9	Non-TPA				
100-B-18	100-B-31				
100-B-23	100-B-32				
100-C-6	100-B-33				
800-232					
100-B-24					
100-B-26					
100-B-30					
100-B-21.3					
100-B-17					

**LEGEND:**

**CLOSBOUT**

TPA

EXCAVATION

TPA

**VERIFICATION SAMPLING**

TPA

NON-TPA

FUTURE

TPA

NON-TPA

**EXCAVATION COMPLETE W/**

TPA

FUTURE NOT IN ROC

NON-TPA

**100-B/C AREA  
OVERALL SITES LOCATION MAP**

SCALE 1:3000  
0 30 60 90 120 meters

**FOR INFORMATION ONLY  
NOT FOR CONSTRUCTION**

# Attachment 10

**From:** Saueressig, Daniel G  
**Sent:** Wednesday, January 13, 2010 2:51 PM  
**To:** ^WCH Document Control  
**Subject:** FW: REVEGETATION OF 100-B-27

Please provide a chron number. This email documents a regulatory agreement.

Thanks,

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

-----Original Message-----

**From:** Buelow.Laura@epamail.epa.gov [mailto:Buelow.Laura@epamail.epa.gov]  
**Sent:** Wednesday, January 13, 2010 2:50 PM  
**To:** Saueressig, Daniel G  
**Cc:** Landon, Roger J; Wilkinson, Stephen G; Post, Thomas C  
**Subject:** Re: REVEGETATION OF 100-B-27

I concur with revegetating B-27 in February.

Laura Buelow, Environmental Scientist  
U.S. Environmental Protection Agency  
Hanford Project Office  
309 Bradley Blvd, Suite 115  
Richland, WA 99352  
Phone: 509 376-5466  
Fax: 509 376-2396  
E-mail: buelow.laura@epa.gov

**From:** "Saueressig, Daniel G" <dgsauere@wch-rcc.com>  
**To:** Laura Buelow/R10/USEPA/US@EPA  
**Cc:** "Post, Thomas C" <Thomas\_C\_Post@rl.gov>, "Landon, Roger J" <RJLANDON@wch-rcc.com>, "Wilkinson, Stephen G" <sgwilkin@wch-rcc.com>  
**Date:** 01/13/2010 02:34 PM  
**Subject:** REVEGETATION OF 100-B-27

Hi Laura, there's been a slight delay in the plans to revegetate the 100-B-27 waste site due to the sampling campaign at the bottom of the excavation by the groundwater folks at DOE. Appendix H of the RDR/RAWP (DOE/RL-96-17), Revegetation Plan for the 100 Areas, specifies a planting window of November through January of each year, although it also states that the plan is generic and that site specific conditions will be evaluated and adjustments made when necessary.

WCH plans to perform the revegetation activities in February as our revegetation subject

148424

matter experts believe the soil moisture content remains conducive to conducting this activity during this month. Let me know if you concur with performing revegetation at 100-B-27 in February and I'll get it documented at the next UMM.


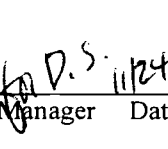
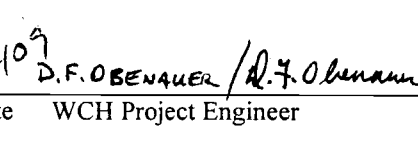
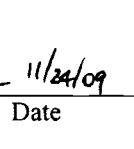

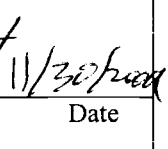
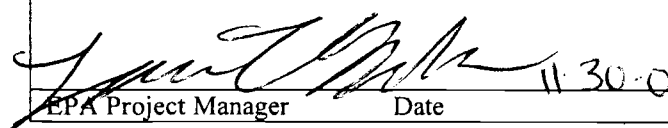
Thanks and give me a call if you have any questions.

Dan Saueressig  
FR Environmental Project Lead  
Washington Closure Hanford  
521-5326

# Attachment 11

<b>Waste Site:</b> <b>100-B-21:4 Pipeline</b> <b>from the 105-C Reactor</b> <b>East to the 116-C-2B</b> <b>Sump</b>	<b>BACKFILL CONCURRENCE CHECKLIST</b> <b>(Concurrence to Proceed with Waste Site Backfill Operations)</b>		<b>WIDS No:</b> <b>100-B-21:4</b>	
This checklist is a summary of cleanup verification results for the 100-B-21:4 Pipeline from the 105-C Reactor East to the 116-C-2B Sump. The checklist is intended as an agreement allowing the RCCC subcontractor to backfill the excavation prior to the issuance of the final remaining sites verification package. Copies of calculations are included with this checklist with results summarized below.				
Regulatory Requirement	Remedial Action Goals (RAG)	Results	RAG Attained	Ref.
Direct Exposure – Radionuclides	1. Attain 15 mrem/yr dose rate above background over 1,000 years.	1. Residual radionuclides in the northeastern quadrant of the northern overburden pile slightly exceeded the direct exposure criterion. Therefore, this portion of the overburden will be backfilled to the deep zone of the excavation. All other results attained the criterion.	Yes	A, B
Direct Exposure – Nonradionuclides	1. Attain individual remedial action goals (RAGs).	1. All individual COC and COPC concentrations are below the direct exposure criteria.	Yes	A
Nonradionuclide Risk Requirements	1. Attain hazard quotient of less than 1 for noncarcinogens.	1. The hazard quotients for individual nonradionuclide COCs/COPCs are less than 1.	Yes	C
	2. Attain cumulative hazard quotient of less than 1 for noncarcinogens.	2. The cumulative hazard quotient for all sampling areas ( $9.2 \times 10^{-3}$ ) is less than 1.		C
	3. Attain excess cancer risk of $<1 \times 10^{-6}$ for individual carcinogens.	3. Excess cancer risk values for individual nonradionuclide COCs/COPCs are less than $1 \times 10^{-6}$ .		C
	4. Attain a total excess cancer risk of $<1 \times 10^{-5}$ for carcinogens.	4. The total excess carcinogenic risk for all sampling areas ( $2.9 \times 10^{-7}$ ) is less than $1 \times 10^{-5}$ .		C
Groundwater/River Protection – Radionuclides	1. Attain single COC groundwater & river RAGs.	1. Cesium-137, cobalt-60, and strontium-90 are predicted to reach groundwater under a conservative scenario. Maximum predicted groundwater activities for all of these radionuclides are less than their respective maximum contaminant levels (MCLs).	Yes	A, B
	2. Attain National Primary Drinking Water Regulations 4 mrem/yr (beta/gamma) dose standard to target receptor/organ.	2. Cesium-137, cobalt-60, and strontium-90 are predicted to reach groundwater under a conservative scenario. Maximum predicted groundwater activities for all of these radionuclides are all significantly less than their respective MCLs (equivalent to a 4 mrem/yr beta/gamma dose rate).	Yes	A, B
	3. Meet drinking water standards for alpha emitters: the more stringent of 15 pCi/L MCL or 1/25 <sup>th</sup> of the derived concentration guide for DOE Order 5400.5.	3. No alpha-emitting radionuclides are predicted to reach groundwater under a conservative modeling scenario.	Yes	A
	4. Meet total uranium standard of 21.2 pCi/L.	4. Uranium was not detected above background levels.	Yes	D



<b>Waste Site:</b> 100-B-21:4 Pipeline from the 105-C Reactor East to the 116-C-2B Sump		<b>BACKFILL CONCURRENCE CHECKLIST</b> (Concurrence to Proceed with Waste Site Backfill Operations)		<b>WIDS No:</b> 100-B-21:4	
<b>Regulatory Requirement</b>	<b>Remedial Action Goals (RAG)</b>	<b>Results</b>	<b>RAG Attained</b>	<b>Ref.</b>	
Groundwater/River Protection – Nonradionuclides	1. Attain individual nonradionuclide groundwater and river cleanup requirements.	1. Total chromium and selenium are present at concentrations slightly above soil RAGs for groundwater and/or river protection. However, an analogous site evaluation based upon the <i>100 Area Analogous Sites RESRAD Calculations</i> (BHI 2005) shows that residual concentrations of chromium and selenium are not predicted to migrate more than 15 m (49 ft) within 1,000 years based on the soil-partitioning coefficient ( $K_d$ ) of 5 mL/g for selenium (the contaminant with the lower $K_d$ value). The vadose zone beneath the 100-B-21:4 subsite is 25 m (83 ft).	Yes	A	
Other Supporting Information	1. 100-B-21:4 Waste Site and Overburden Stockpiles Figure			E	
All citations above and attached sheets are on record with Washington Closure Hanford, Records and Document Control. Above noted regulatory requirements have been attained.					
<div style="display: flex; justify-content: space-between;"> <div>             M. Buckmaster            WCH Field Remediation Manager         </div> <div>             D.S.            Date         </div> <div>             D.F. OBENAUER / R. F. Obenauer            WCH Project Engineer         </div> <div>             R. F. Obenauer            Date         </div> <div>             Tom Clout            DOE Project Manager         </div> <div>             Tom Clout            Date         </div> </div>					
Given the attached information, DOE can proceed with backfill of the site with minimal risk. Final approval that the site has met remedial action objectives and goals will occur with the submittal, review, and approval of the Remaining Sites Verification Package(s) by the lead regulatory agency.					
 EPA Project Manager		Date 11-30-09		N/A Ecology Project Manager	
				N/A Date	

# Attachment 12

300 Area D4 Status  
January 14, 2010  
100/300 Area Combined Unit Manager Meeting

**Ongoing Activities**

- 324 – completed decontamination of B Cell sump/pipe trench, evaluating failed liner
- 327 – subcontractor completed wire sawing last hot cell, preparing for gantry installation
- 308 – shipped five glove boxes in last two months

**Upcoming/Completed Demolition**

- Preparations ongoing for full demolition of 336 and 338 Buildings
- 3718P – demolition completed

**Current Demolition Preparations & Activities**

- 384 - below-grade completed
- 336 – grout-fill of below-grade completed
- 338 – transite panel removal nearing completion
- Miscellaneous 300 Area Slab – planning for non-WIDS interfered demo
- 3718M – completed diamond saw access to below-grade tank, asbestos abatement to commence
- 300 Area, north of Ginko, turned over to Field Remediation

**60-Day Project Look Ahead**

- Continue shipment of 308 glove-boxes
- Complete installation of the gantry crane and initiate 327 hot-cell removal
- Continue 324 characterization and engineering
- Complete demo of 336, 338, and 3718M
- Initiate hazmat removal at 315
- Receive the 340, 307, & 310 facilities from CHPRC

# Attachment 13

<b>Control Number:</b>  TPA-CN-322	<b>TPA Agreement/Change Control Form</b>  ___ Change <u>X</u> Agreement    ___ Information  <b>Operable Unit(s): 300 Area Removal Action</b>	<b>Date Submitted:</b> 1/14/10  <b>Date Approved:</b> 1/14/10
<b>Document Number/Title:</b> <i>Removal Action Work Plan for 300 Area Facilities, (DOE/RL-2004-77, Rev. 2), Appendix B, Rev 2A, Air Monitoring Section, B.5, Operation of Active Emission Points</i>		<b>Date Document Last Issued:</b> December 2007
<b>Originator:</b> Rudy Guercia		<b>Phone:</b> 376-5494
<b>Summary Discussion:</b>  <p><i>Removal Action Work Plan for 300 Area Facilities, (DOE/RL-2004-77, Rev. 2)</i> documents activities to be performed to achieve the non-time-critical removal action for surplus facilities located in the 300 Area on the Hanford Site. Specifically, Appendix B, Air Monitoring Section, B.5, Operation of Active Emission Points, establishes the process for transfer of active emission units identified in the Hanford Site Air Operating Permit to the 300 Area CERCLA removal action.</p> <p>The current Air Monitoring Plan, Section B.5, establishes the regulatory process for transfer of active emission points to the 300 Area CERCLA removal action in accordance with Action Memorandum #3 for the 300 Area. However, during a review of Section B.5, associated with the pending transfer of the 340 Complex to CERCLA, language was identified that is inconsistent with Action Memorandum #3, Section 5.3.2, Standards Controlling Emissions to the Environment. A change to the Air Monitoring Plan Section, B.5, is necessary to resolve the inconsistency with the Action Memorandum #3 for the 300 Area Facilities, which is the primary CERCLA document.</p>		
<b>Justification and Impact of Change:</b>  <p>A change to the Air Monitoring Plan Section, B.5, is necessary to resolve language that is inconsistent with the Action Memorandum #3 for the 300 Area Facilities. Action Memorandum #3 is the primary CERCLA document for the 300 Area removal action. Approval of this TPA Change Control Form constitutes a revision to Appendix B of the Removal Action Work Plan for 300 Area Facilities (DOE/RL-2004-77, Rev. 2).</p> <p><i>Removal Action Work Plan for 300 Area Facilities, (DOE/RL-2004-77, Rev. 2), Appendix B, Rev 2A, Section B.5, Operation of Active Emission Units, existing text for paragraph 1:</i></p> <p>Existing Paragraph 1: "Some facilities (see Table B-2) within the scope of the removal action are currently operating under terms and conditions documented in Washington State Department of Health Approval Orders and the Hanford Site Operating Permit (AOP). The substantive regulatory requirements associated with these facilities may, over time, be incorporated into this appendix. These terms and conditions or any subsequent approvals will be considered obsolete upon EPA approval of a revision to this appendix. Changes may also be documented in the UMM minutes. If the emission unit is not shut down prior to transition to CERCLA, D4 activities will be subject to the existing State of Washington permits and licenses, and the emission point will be closed in accordance with the AOP."</p> <p>Change to:</p> <p>"Some facilities (see Table B-2) within the scope of the removal action are currently operating under terms and conditions documented in Washington State Department of Health Approval Orders and the Hanford Site Operating Permit (AOP). The substantive regulatory requirements associated with these facilities may, over time, be incorporated into this appendix. These terms and conditions <u>contained in the AOP</u> or any subsequent approvals will be considered obsolete upon EPA approval of a revision to this appendix. Changes may also be documented in the UMM minutes. <del>If the emission unit is not shut down prior to transition to CERCLA, D4 activities will be subject to the existing State of Washington permits and licenses, and the emission point will be closed in accordance with the AOP.</del>"</p>		

<b>DOE Project Manager:</b> <i>[Signature]</i>	<b>Date:</b> <i>[Signature]</i>
<b>EPA Project Manager:</b> <i>Larry Gaylor</i>	<b>Date:</b> <i>Jan 14 2010</i>
<b>Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3</b>	

TPA-CN-322



# Attachment 14

*River Corridor Document Listing*

<b>OU</b>	<b>Lead Regulator</b>	<b>Description</b>	<b>Regulator Review (Draft A) Start</b>	<b>Regulator Review (Draft A) End</b>
100	EPA, Ecology	Integrated 100 Area RI/FS Work Plan	complete	complete
100	Ecology, EPA	Hexavalent Chromium Focused Feasibility Study for the 100 Areas	DFT B 6/7/2010	DFT B 7/21/2010
100	Ecology, EPA	100 Areas Bio/Chem Remediation Proposed Plan	DFT B 6/7/2010	DFT B 7/21/2010
100-BC	EPA	100-B/C Decision Unit Work Plan, Addendum 3 and SAP (Dft A TPA M-015-67 9/30/09)	9/25/2009	11/24/2009
100-F	EPA	100-F Decision Unit Work Plan, Addendum 4 and SAP (Dft A TPA M-015-63 9/30/09)	9/25/2009	11/24/2009
100-D/H	Ecology	100-DH Decision Unit Work Plan, Addendum 1 and SAP (Dft A TPA M-015-69 5/31/09)	complete	complete
100-D/H	Ecology	100-HR-3 - Revision to the RD/RAWP for DX and HX Pump and Treat System	3/26/2010	5/11/2010
100-D/H	Ecology	100-HR-3 Bioreactor Treatability Test Plan	2/1/2009	3/1/2010
100-D/H	Ecology	100-HR-3 Bio-injection Treatability Test Plan	2/1/2009	3/1/2010
100-D/H	Ecology	100-HR-3 RPO Wells Sampling and Analysis Plan Rev 2	complete 11/30/2009	complete 12/15/2009
100-N	Ecology	100-N Decision Unit Work Plan, Addendum 5, Draft A (Dft A TPA M-015-61 12/31/09)	12/23/2009	2/22/2010
100-N	Ecology	100-NR-2 Draft Proposed Plan Amend ROD for Interim Action or to Propose a New ROD (M-015-61 12/30/09)	12/19/2009 Dft B	2/02/2010 Dft B
100-N	Ecology	100-NR-2 Interim ROD ammendment (if needed)		
100-N	Ecology	100-NR-2 Interim RD/RAWP (if needed)	tbd	
300-FF	EPA	300 Decision Unit RI/FS Work Plan and SAP(Dft A TPA M-015-71 10/31/09)	10/21/2009 complete	12/21/2009 complete

# Attachment 15

## **Input for January 14, 2010 UMM**

In accordance with the details specified in the *Remedial Investigation Work Plan for Hanford Site Releases to the Columbia River* (DOE-RL 2008-11, Rev. 0) Section 2.2.2. of the Sampling and Analysis Plan (SAP) meetings with the regulators were held on November 12 and December 10, 2009. Results from the Phase IIb work at the 100B/C, 100K, 100D, 100H, and 300 Areas were discussed and proposed locations for Phase III Groundwater Plume Upwelling Delineation were presented. A number of proposed location changes were discussed and are summarized in the text below and Table 1. The attached Powerpoint slides provide maps of the locations discussed. Discussions for the three remaining areas (100N, 100F, and HTS) are scheduled for later in January 2010.

### **Global**

#### **From 11/12/09**

- There was a general discussion regarding the correlation of supporting data that is being collected with river stage. It was noted that this information will be available in the RI report for this work.
- Given the physical constraints associated with the sample collection efforts (1 sample (pore water, surface water, and sediment)/boat/day), fluctuations in river stage, and approximate three month window (January through March 2010) for sampling it will be necessary to limit the number of samples per study area as defined in the work plan.
- Following the completion of discussions it was noted that another meeting should be held early in the Phase III sampling efforts to prioritize the approach to the alternate samples across all of the study areas in case it becomes necessary to eliminate any samples due to the return of the spring flood waters.
- With regard to sediment sampling a discussion concluded that the preference for collection methods would be 1) via power grab method similar to previous RI efforts, or 2) via a core collection method proposed by EAS. Scrapping sediment off of rocks and cobbles collected off the river bottom to collect sufficient volume would introduce uncertainties (e.g., biomass) that would complicate any data evaluation.

#### **From 12/10/09**

- Note in the summary report which groundwater plume map data is being used, whether the basis is the annual groundwater report or data is based on pump and treat annual reports, also noting if it is based on monthly averages, etc.
- Consider performing a correlation of the data against the collection time (ie. whether data was collected during a rising or decreasing river stage) to determine if there are any effects noted.
- The analytical priority for sediment collection in Phase 3 is based on the discussion in the Work Plan SAP (Section 2.4.5), that being metals, radionuclides, then pesticides and PCBs,

- At station T100D1A where a 9 ppb hex chrome and 578 uS/cm conductivity was reported during Phase IIb return to this station and include it in the Phase III sampling campaign. Along with data from the other Phase III locations, this will address the potential concern that other ions (e.g. nitrate in 100-D Area) impart an effect on conductivity measurements.
- From the area immediately downstream from station T100D1A (about 100 yards) in the area contained within the 100 ppb groundwater contour take a Phase IIb hex chrome sample and conductivity measurement to help refine the groundwater contour. This is all that is required at this site.
- The other stations proposed for Phase III were accepted.

#### **100-H area (12/10/09)**

- There was a fair amount of discussion regarding the presence of hex chrome at mid channel and left bank locations (13 and 23 ppb, respectively). Suggestions for explanations include sediment transport from upstream locations or movement across the river in porewater. Most people agreed that it is unlikely being contributed from the Franklin County side.
- There was additional discussion regarding new groundwater or aquifer tube data that exists upriver from station J100H3 where a hex chrome value of 28 ppb was found, along with a suggestion of performing additional Phase IIb measurements. 2008 groundwater data will need to be obtained (from J. Smoot, CHPRC) to help locate one additional station that will be added as a Phase 2b (hex chrome only) measurement. This will be treated as a secondary priority (alternate) station. UPDATE 1/6/10: Use Phase IIa station T100H1J1 for the location.
- There was some discussion regarding the area downstream from the Phase III 29 ppb selected site regarding a historical water intake structure that may have been removed. This is in the vicinity of station T100H1J8 where high conductivity values (950 and 655) were reported. There was further discussion about possibly performing cation/anion analysis at a point in this area during Phase III (see previous note on this subject). No additional samples were selected however.
- The stations proposed for Phase III were accepted.

#### **300 Area (11/12/09)**

- Ecology staff questioned whether the proposed locations of VOC samples were adequate to address both of the plumes that have been noted in the 300 Area. There was also a concern whether these samples would be within the appropriate geologic strata. As a result four additional Phase II(b) stations were included to better cover the potential VOC release sites.
- Identified a total of 11 stations where U and VOC analyses will be performed to address both areas of VOC releases (all other 300 Area stations required uranium analysis only)

Table 1. Phase III Groundwater Upwelling Station Selection Summary

1/6/2010

Station ID	Ranking	Juxtaposition from Hanford Shoreline (upriver to downriver)	Relative Abundance of Sediment	Phase II(b) Analytical Result - Hexavalent chromium or Uranium (ppb)	Phase II(b) Porewater Conductivity (µS/cm)	Comments
<b>100B/C Area</b>				<b>Hex Chrome</b>		
2A-A	Alternate	Nearshore	Abundant	24	305	
T100BC1J1	Alternate	Intake Structure	Abundant	18	360	
T100BC1J5	Primary	Intake Structure	Moderate	23	334	
T100BC3C	Primary	Offshore	Scarce	112	240	
J100BC21	Alternate	Offshore	Scarce	73	332	
T100BC4A	Primary	Nearshore	Scarce	80	350	
T100BC5C	Primary	Offshore	Scarce	57	279	
T100BC6J10	Alternate	Nearshore	Scarce	26	299	
J100BC23	Primary	Offshore	Marginal	91	160	
J100BC47	Primary	Nearshore	Scarce	28	370	
<b>100K Area</b>				<b>Hex Chrome</b>		
KWIN Test 1	Primary	Offshore	Abundant	23	350	
T100K1C	Primary	Offshore	Scarce	44	260	
K Intake Test 3A	Alternate	Offshore	Abundant	8	305	
T100K2B	Primary	Offshore	Moderate	15	274	
T100K3A	Primary	Nearshore	Moderate	17	240	
J100K24	Primary	Nearshore	Marginal	36	350	
<b>100D Area</b>				<b>Hex Chrome</b>		
T100D1A	Primary	Offshore	Scarce	9	578	
T100D2A	Primary	Nearshore	Scarce	26	368	
T100D3A	Primary	Nearshore	Abundant	331	418	
J100D36	Primary	Nearshore	Scarce	112	237	
J100D39	Primary	Nearshore	Marginal	26	238	
J100D9	Primary	Nearshore	Marginal	18	302	
T100D1A/T100D1J1	Alternate	Offshore	n/a	n/a	n/a	obtain a new Phase II(b) hex chrome sample only to verify groundwater plume contour
<b>100H Area</b>				<b>Hex Chrome</b>		
T100H1J1	Alternate	Nearshore	n/a	n/a	n/a	obtain a new Phase II(b) hex chrome sample only to verify revised groundwater plume contour
T100H1E	Primary	Farshore	Abundant	23	223	
T100H1A	Primary	Nearshore	Marginal	29	297	
T100H2A	Primary	Nearshore	Scarce	20	301	
J100H44	Primary	Nearshore	Scarce	28	205	
T100H6A	Primary	Nearshore	Scarce	46	302	
T100H6J6	Alternate	Farshore	Abundant	31	797	obtain a new Phase II(b) result and determine if Phase III is justified
J100H43	Primary	Offshore	Marginal	31	179	
<b>300 Area</b>				<b>Uranium</b>		
J3002	Alternate	Nearshore	Moderate	49	424	
T3001J3	Primary	Offshore	Moderate	113	462	
T3003A	Primary	Nearshore	Scarce	112	358	



# Mapping and Characterization of Hanford Site Releases Via Groundwater Upwellings into the Columbia River:

Phase III Station Selection Summary  
1/6/10

Larry Hulstrom – Washington Closure Hanford, LLC

Brett Tiller – Environmental Assessment Services, LLC

and

Bart Chadwick, Jon Groves, Ron Paulsen, Chris Smith –  
*Coastal Monitoring Associates, LLC*

**EAS** ENVIRONMENTAL  
ASSESSMENT  
SERVICES  
RICHLAND, WASHINGTON

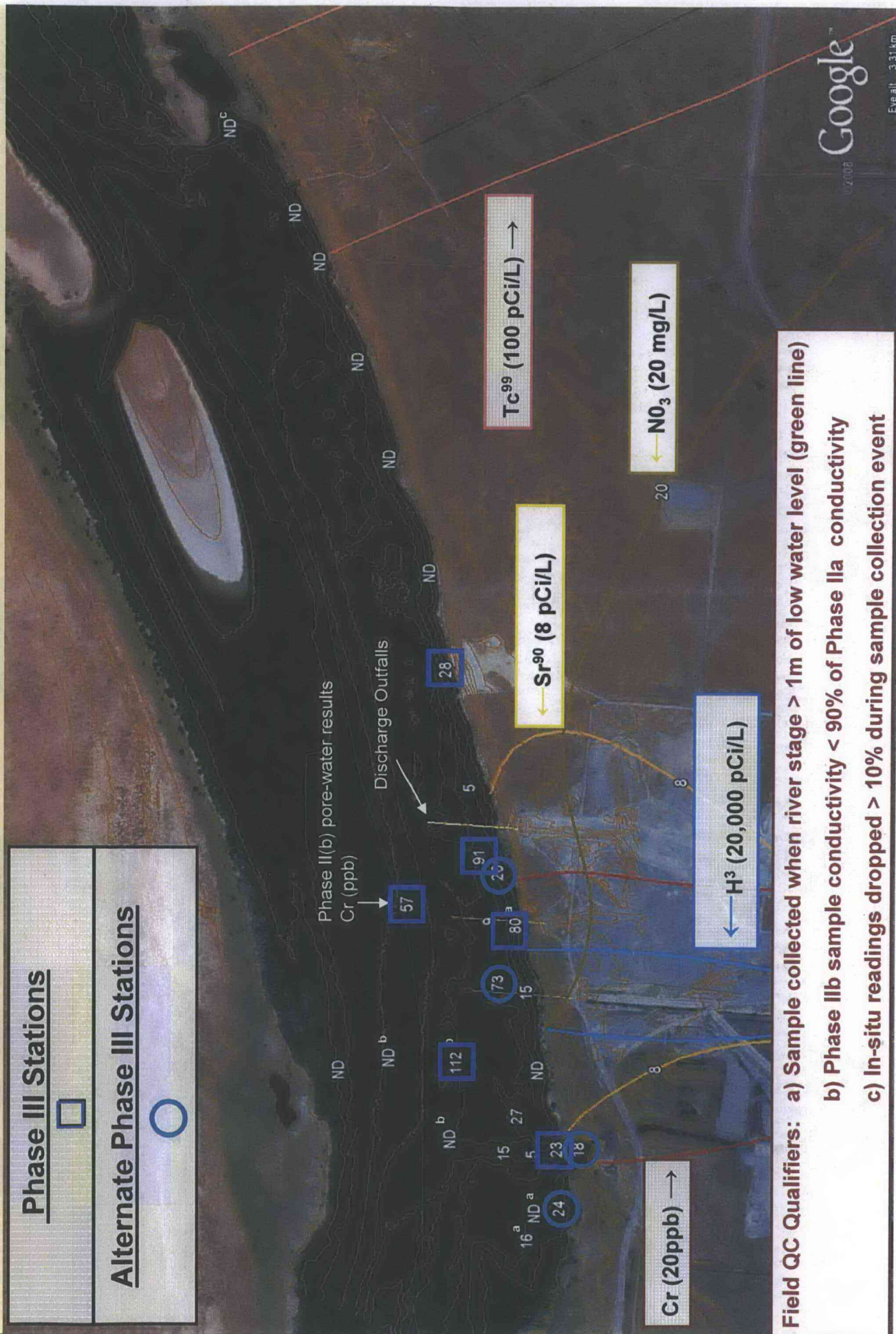




# Phase III Stations: 100B/C Area


Phase III Stations


Alternate Phase III Stations

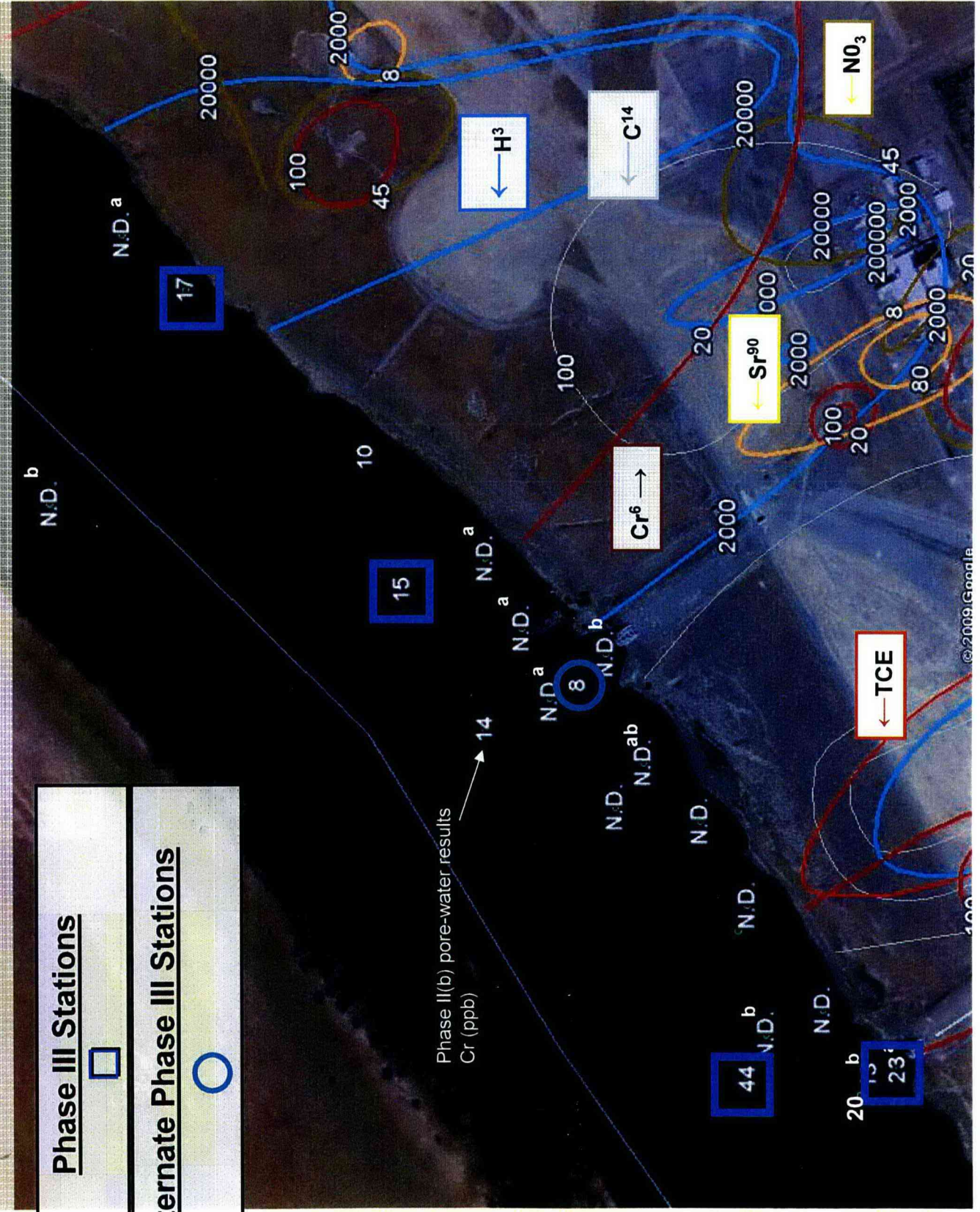




# Phase III Stations: 100K Area (Figure 1 of 2)

Phase III Stations


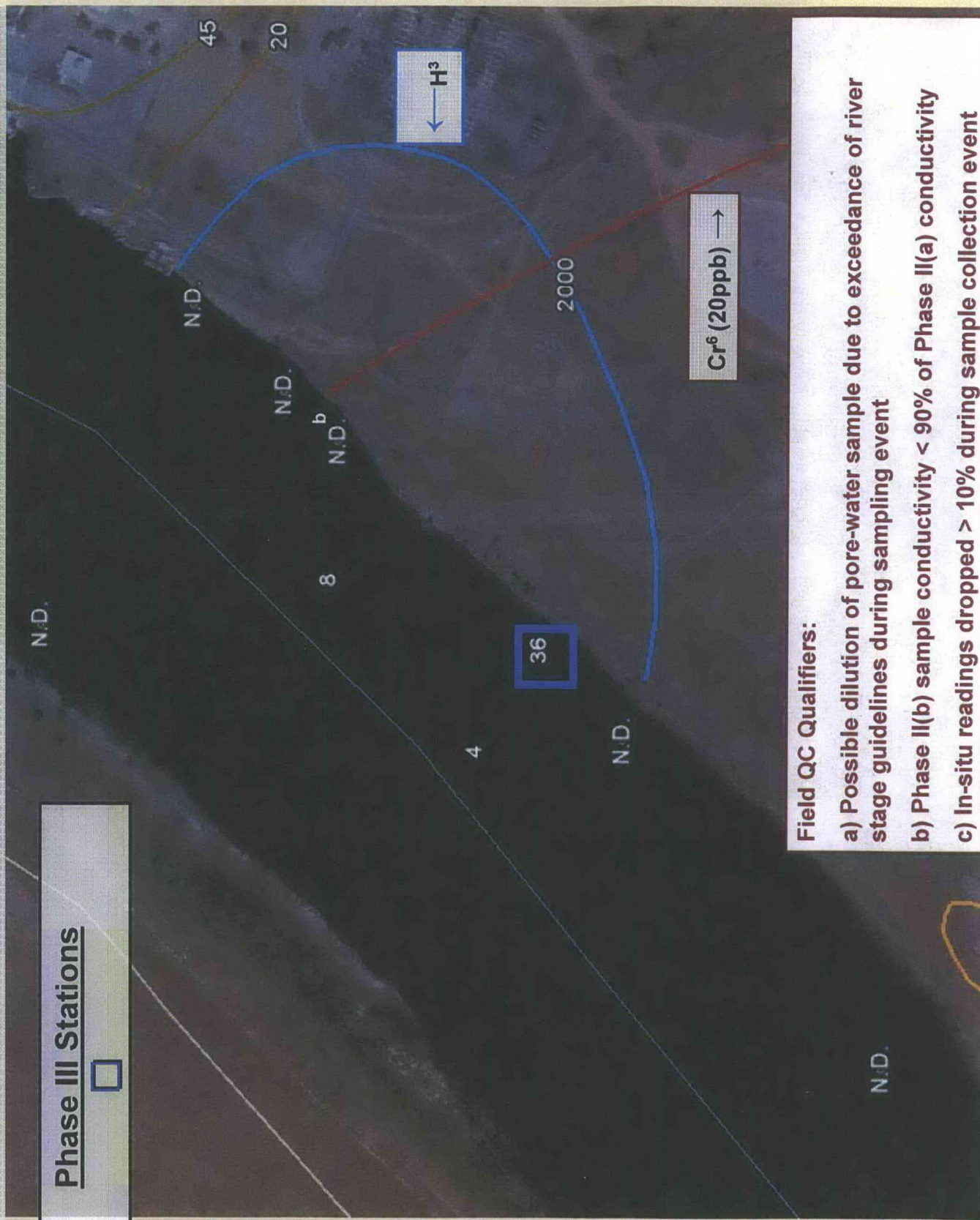
Alternate Phase III Stations






## Phase III Stations: 100K Area (Figure 2 of 2)

Phase III Stations



### Field QC Qualifiers:

- a) Possible dilution of pore-water sample due to exceedance of river stage guidelines during sampling event
- b) Phase II(b) sample conductivity < 90% of Phase II(a) conductivity
- c) In-situ readings dropped > 10% during sample collection event

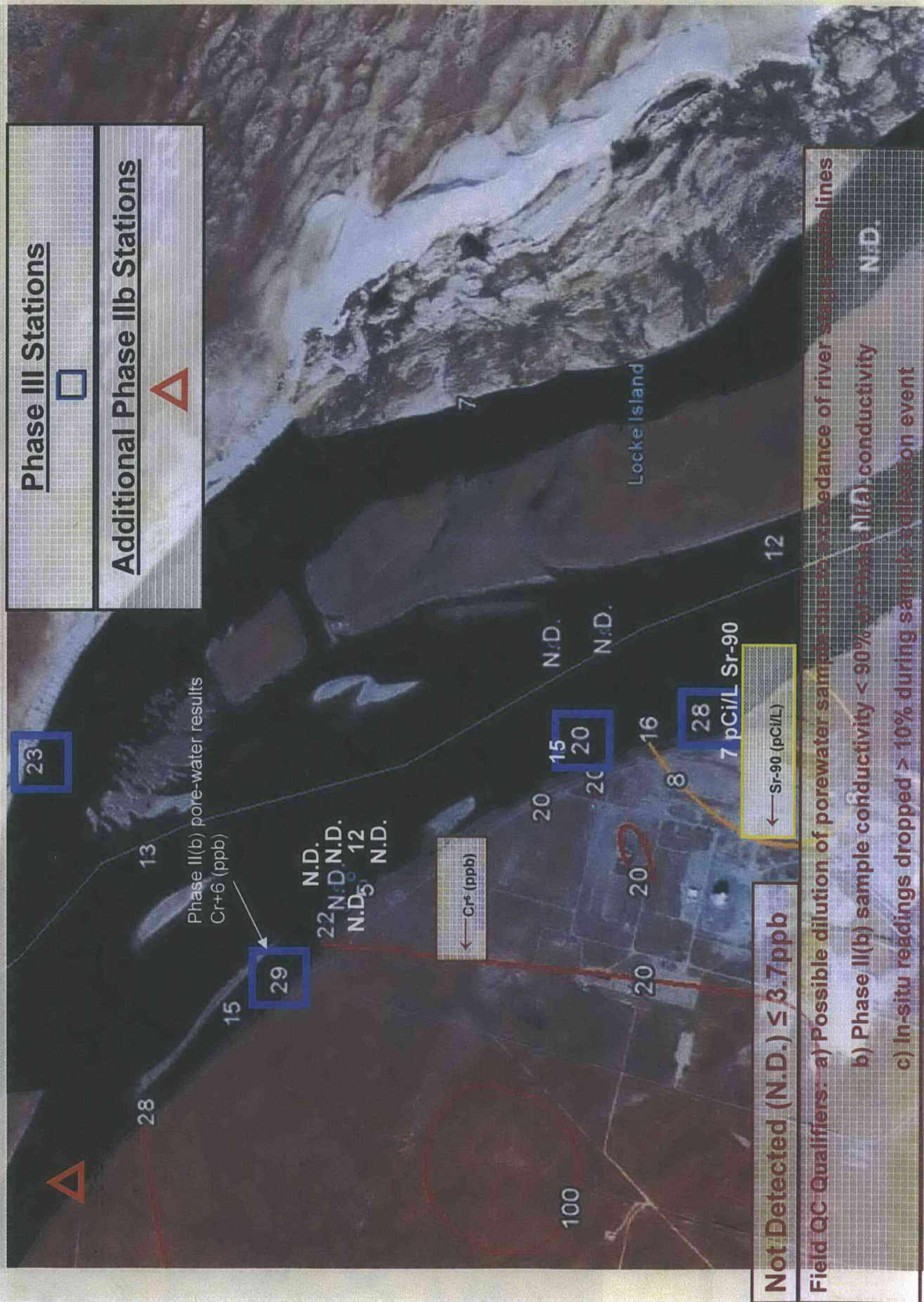


1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26



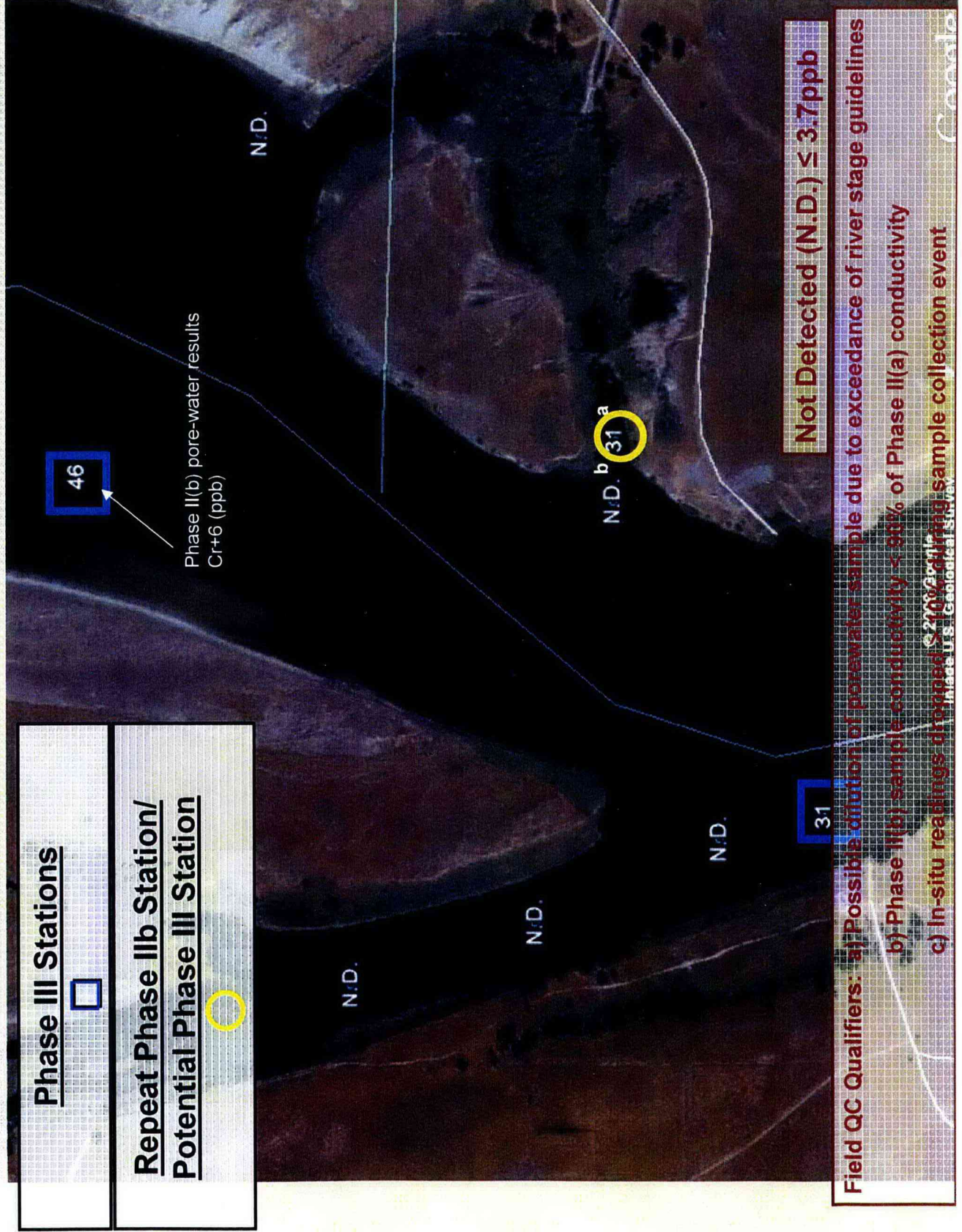


## Phase III Stations: 100H Area (Figure 1 of 2)





## Phase III Stations: 100H Area (Figure 2 of 2)





# Phase III Stations: 300 Area



# Attachment 16



# CERCLA Five-Year Review Action Items

1/11/2010

Point of Contact	Action No.	Deliverables	Due Date	Status
<b>100 Area</b>				
WCH	1-1	Submit Draft A of the River Corridor Baseline Risk Assessment Report.	6/1/2007	Completed-6/2007
WCH	1-2	Submit draft Sampling and Analysis Plan for Inter-Areas Shoreline Assessment.	8/1/2006	Completed-7/2006
WCH/RL	1-3	Reassess and resubmit to EPA the protectiveness determinations for operable units 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, 100-HR-1, 100-HR-2, 100-HR-3, 100-IU-2, 100-IU-6, 100-KR-1, 100-KR-2, 100-KR-4, 100-NR-1, 300-FF-1 and 300-FR-2 using new information from the River Corridor Baseline Risk Assessment and submit to EPA an addendum with, as appropriated, updated Protectiveness Determinations, Issues, and Follow-Up Actions.	2/15/2008	This action was to be coordinated with the finalization of the Risk Assessment. A Draft B Risk Assessment is now projected to be submitted early 2010.
RL	2-1	Submit Draft A of the River Corridor Strategy for Achieving Final Cleanup Decisions in the River Corridor. This document will identify issues for integration and provide alternatives for future discussion between the Tri-Party Agencies on milestones for final records of decision in the River Corridor.	11/1/2006	Completed
Williams, Janice	2-2	Reach agreement between the Tri-Party Agencies on a strategy and schedule to obtain final records of decision in the river corridor.	11/30/2007	Completed. Final Approval Package for Tentative Agreement on the HFFACO (the TPA) Modifications Regarding Accelerated Groundwater and Soils Milestones, was signed by the Parties and issued in August 2009. This completed the action to establish the overall strategy to reach final records of decisions for the River Corridor.
Williams, Janice	2-3	Submit a Tri-Party Agreement change package with new milestones for submitting remedial investigation/feasibility study work plans and proposed plans for all operable units in the river corridor. New milestones shall require submission of remedial investigation/feasibility study work plans and proposed plans for final action at all of the following operable units that do not already have these documents approved: 100-BC-1, 100-BC-2, 100-BC-5, 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, 100-FR-3, 100-HR-1, 100-HR-2, 100-HR-3, 100-IU-2, 100-IU-6, 100-KR-1, 100-KR-2, 100-KR-4, 100-NR-1, 100-NR-2, 300-FF-2, and 300-FF-5.	2/1/2008	Completed. Final Approval Package for Tentative Agreement on the HFFACO (the TPA) Modifications Regarding Accelerated Groundwater and Soils Milestones, was signed by the Parties and issued in August 2009. This completed the action to establish the overall strategy to reach final records of decisions for the River Corridor.
Robertson, Julie	3-1	Install three additional wells to further delineate the southeastern (inland) extent of the chromium groundwater plume from the 116-K-2 trench, northeast of the current injection wells. Wells installed as part of the pump-and-treat system expansion or injection well relocation may count towards this effort if appropriately located..	8/1/2008	Completed - 1/2008: Drilling began on 18 KR-4 pump-and-treat wells on 10/4/07. Wells K153, 154 & 163 were drilled to address this action. Well development activities were completed for these wells in January 2008.
Robertson, Julie	4-1	Construct a new pump-and-treat facility to address the chromium groundwater plume in the KW Reactor area.	8/1/2008	Completed-1/2007: Operation of the KW pump-and-treat system began on 1/29/07. The system operated at design capacity of approximately 100 gpm using 4 extraction wells and 2 injection wells.
Robertson, Julie	5-1	Expand the 100-K pump-and-treat system by 378.5 liters (100 gallons) per minute to enhance remediation of the chromium plume between the 116-K-2 and the N Reactor perimeter fence.	8/1/2008	Completed - The existing KR-4 pump-and-treat system is operating at design capacity of approximately 300 gpm. Construction of the new KX P&T System was completed in September 2008. The facility was fully operational at 600gpm treatment capacity on May 20, 2009.



# CERCLA Five-Year Review Action Items

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Point of Contact	Action No.	Deliverables	Due Date	Status
Robertson, Julie	5-2	Add additional wells between 166-K-2 [Note: this is a typo and should read 116-K-2] trench and the N Reactor perimeter fence for groundwater extraction and connect the additional wells to the pump-and-treat system.	To be completed with Action 5-1	Completed - Drilling was completed on 3/19/08. The K expansion wells K147, 148, 149, and 150 along with - existing wells K130 & 131 fulfill this action. The wells are connected to the KX P&T system.
Bowles, Nathan	6-1	Implement the treatability test plan for permeable reactive barrier utilizing apatite sequestration as described in the Strontium-90 Treatability Test Plan for 100-NR-02 Groundwater Operable Unit (DOE 2005c). Issue Treatability Test Report.	9/1/2008	Completed - Two pilot injection tests were conducted - June and September 2006. DOE used the results of these tests and subsequent bench scale testing to modify the chemistry of injected solution. DOE conducted two injection campaigns in FY 2007. The first campaign targeted the Ringold formation when the water table was relatively low (February 28 through March 22). The second campaign targeted the Hanford formation when the water table was high (June 6 through July 10). The Interim Report was completed by PNNL in July 2008 (PNNL-17429).
Bowles, Nathan	7-1	Perform additional data collection to support risk assessment, provide to Ecology previously collected data, and coordinate with River Corridor sampling efforts to collect additional pore water data from new and existing aquifer tubes along the 100-NR-2 shoreline in order to assess water quality impacts.	9/1/2008	(Partially completed August 2008) Samples were collected from aquifer tubes in FY07 and FY08. Section 2.4.1 of the Groundwater Annual report discusses significant results. PNNL placed additional aquifer tubes and collected samples to identify the dimensions of SR-90 and TPH contaminants along the shoreline at 100-NR-2 in 2007. The results are detailed in PNNL-16714. Additional tubes were installed in 2008. Previous sample results have been provided to Ecology. Ecology feels that the river pore data collections from seeps in the river described in the Remedial Investigation Work Plan for Hanford Site Releases to the Columbia River, DOE/RL-2008-11, Rev. 0 should be completed prior to closing out this action.



# CERCLA Five-Year Review Action Items

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Point of Contact	Action No.	Deliverables	Due Date	Status
Biebesheimer, Fred	8-1	Complete a field investigation to investigate additional sources of chromium groundwater contamination within the 100-D Area. Additional geologic and geochemical investigations of the vadose zone in the 100-D Area.	3/1/2009	Complete - Initial field work was completed in March 2007 with the drilling of 7 groundwater monitoring wells (DOE/RL-2006-74). These wells and selected existing wells are currently being monitored to refine the source area. Based on this investigation, four additional boreholes were drilled to further refine the source area. See Figure 8-1. A letter report describing completion of the field investigation was submitted to RL in September 2008 (reference).  An investigation of the northeastern chromium plume, including vadose boreholes and wells, took place in FY 2008.  Additional Characterization will be performed in the 100 Area RI/FS to address sources of chromium in the North Plume.  PNL is completing geochemical investigations to determine how chromium is refined on sediments. An interpretive report was submitted to RL 9/30/08.
Biebesheimer, Fred	9-1	Perform additional characterization of the aquifer for chromium contamination between the 100-D and 100-H Area, in the area known as the "horn", and evaluate the need to perform remedial action to meet the remedial action objectives of the 100-D record of decision for interim action. This issue will also be addressed in the final record of decision.	9/30/2009	Complete. Initiated drilling of 21 wells in August 2007 (SGW-33844). All wells were completed January 2008. Nine sets of aquifer tubes have been installed and sampled in October and November 2007. Post sampling and well monitoring continues. See Figure 9-1. A "horn" investigation report was issued to RL in June 2009.
Biebesheimer, Fred	9-2	Incorporate the "horn" area into the 100-HR-3 interim record of decision treatment zone if Action 9-1 indicates "horn" contains a groundwater chromium plume that needs immediate remediation.	9/1/2009	Complete - This action is dependent on results of Action 9-1 above and was incorporated into the Systematic Planning Process for HR-3 OU. The results of Action 9-1 showed that the plume in the horn area was extensive, but only a small part was >100 ug/L, the federal DWS. A portion of the plume exceeded the stake action level of 48 ug/L is scheduled for remedial action as part of RPO implementation under the interim ROD to meet remedial action objectives. The action was considered in the systematic planning proven for the RI/FS work plan.



# CERCLA Five-Year Review Action Items

1/11/2010

Point of Contact	Action No.	Deliverables	Due Date	Status
Biebesheimer, Fred	10-1	Issue direction to the operating contractor to change operations to further minimize leakage from the 182-D reservoir.	Completed prior to issuing the five-year review	Complete. A Timely Order was issued to prevent the use of 182-D except in the event of an emergency situation, such as fire control or loss of other safety system water supplies (Reference: JLD-02-02-2007-01 Rev02)
Strimption, Dave	11-1	Initiate limited iron amendments to the insitu redox manipulation barrier to evaluate whether this enhances the performance.	9/11/2007	Completed - Field tests with zero valent iron occurred in FY 2008 and FY 2009. A report documenting the iron amendment test results will be submitted to RL.
Biebesheimer, Fred (Note: this item was not part of the Executive Summary table in the CERCLA 5-year review but exists within the text in Section 1.4.6.4).	11-2	Expand groundwater pump-and-treat extraction within the 100-D Area by 378.5 liters (100 gallons) per minute to enhance remediation of the chromium plume.		On-going - Pump-and-treat extraction in the 100-D Area is being expanded by 600 gpm (DX Expansion project) and is scheduled for startup in December 2010.
Biebesheimer, Fred	12-1	Perform additional characterization of the aquifer below the initial aquitard. [Note: this action is for H Area.]	9/30/2009	Ongoing - Additional characterization conducted via an aquifer rebound test and pumping from the RUM unit to verify the conceptual site model in FY 2009. Testing conducted in September and October. Data are being evaluated. Report will be prepared in second quarter FY 2010. Five wells will be drilled into the RUM in support of the 100-D and H Area RI/FS in FY 2010.
<b>200 Area</b>				
Byrnes, Mark	13-1	Complete a data quality objective process and sampling plan to further characterize the technetium-99 groundwater plume near T Tank Farm.	1/15/2007	Completed-Contract deliverable CD0510. "Data quality objective process and sampling plan to further characterize the technetium-99 groundwater plume near T Tank Farm" was completed and transmitted to DOE/RL on 2/15/07.
Byrnes, Mark	14-1	Assess treatment options to address technetium-99 near T Tank Farm.	9/6/2007	Completed by the implementation of an additional pump-and-treat system.
Benecke, Mark	15-1	Complete data quality objective process and sampling plan to further characterize the high soil conductivity measurements detected at B/C cribs and trenches.	11/28/2007	Completed-Sampling and Analysis Plan was approved on November 28, 2007.
Byrnes, Mark	16-1	Increase the pump size in 200-ZP-1 extraction wells 299-W15-45 AND 299-W15-47.	1/15/2007	Completed-Pump size increase in 200-ZP-1 extraction wells 299-W15-45 and 299-W15-47 was omitted as a deliverable requirement as this work could no longer be accomplished because of declining water levels in these wells.

# CERCLA Five-Year Review Action Items

1/11/2010

<i>Point of Contact</i>	<i>Action No.</i>	<i>Deliverables</i>	<i>Due Date</i>	<i>Status</i>
Rohay, Virginia	17-1	Evaluate expanding the soil-vapor extraction operations. Review converting former groundwater extraction well 299-W15-32 to a soil-vapor extraction well.	3/29/2007	Completed- Soil-vapor operations should be expanded over the next 13 years. Current baseline schedule includes the conversion of 3 or 4 existing groundwater monitoring wells to SVE well. Well 299-W15-32 was converted to an SVE well in FY2006.
Byrnes, Mark	18-1	Prepare an explanation of significant difference for 200-UP-1 interim record of decision.	6/1/2008	Completed February 24, 2009.
Borghese, Jane	19-1	Complete focused feasibility study for 300-FF-5 Operable Unit to provide better characterization of the uranium consequences and evaluate treatment alternatives. Concurrently test injection of polyphosphate into the aquifer to immobilize the uranium and reduce the concentration of dissolved uranium. These activities support a CERCLA proposed plan..	9/1/2008	Complete. FH letter FH-0801578A R3, dated September 16, 2008, transmitted the Remediation Strategy for Uranium at the Hanford Site 300 Area. 300-FF-5 Operable Unit, DOE/RL-2008-36, Revision 0, which fulfilled this action in place of a Focused Feasibility Study.